

RootMaker[®] News

This has been a very busy spring at RootMaker[®] Products Company. Many customers we talked with have reported very good sales. Several are reporting they are sold out for this year and are taking orders for 2005. In the Weekly NMPRO e-mail for May 4, 2004, Todd Davis stated that ANLA has reported that customer counts in garden centers are up and retailers saw sales increases of 8%-40% over last year.

We are pleased to announce the addition of Kathy Collins to our staff. She is an avid plant person, volunteering her time at the botanical gardens. You will have the opportunity to speak with her when you call.

RootMaker[®] Brand. When this company was formed, we developed a 5-year strategy for the promotion of RootMaker[®] as the name that would be synonymous with quality plants. We began seeing results as early as 2002. The interest in our containers has steadily increased. Customers are using our containers because their customers are demanding plants grown in RootMaker[®] containers. We envision a time when every landscape contractor would be no more than 50 miles from a grower of landscape RootMaker[®] trees.

I am amazed by the number of landscapers that attended the winter trade shows were not aware of the increased benefits of the root system that our containers produce. They were tremendously interested in the "thrivability" of RootMaker[®] plants.

The campaign to educate landscapers and landscape architects is going very well. The response to our ads in Landscape Contractor magazine continues to be very good. We have gained a number of new customers as a direct result of landscapers recognizing that the RootMaker[®] containers produce superior plants. A picture of the root system that can be achieved with RootBuilder[®] was on the cover of May 2004 *Landscape Architect and Specifier News*.

Making Customers Aware. The most convincing way to convey to your customers why you have chosen The Whitcomb System[®] and RootMaker[®] containers is to sacrifice trees of various sizes. Wash out all the soil, exposing the roots. This will work for trees in above ground as well as in-ground containers.

I saw first hand the effectiveness of this marketing device at the shows in January. Several growers displayed trees grown in 5" Knit Fabric containers, RMI 3-gallon containers, and 18" Knit Fabric containers. People in the aisles were drawn to the booths by the abundance of roots on display. This kind of display becomes even more dramatic if you contrast trees grown in a conventional container or a field dug tree that has not benefited from root pruning. It is not hard to find trees in containers with circled roots to use in your display.

This can be just as effective if displayed at your nursery in a prominent place. Photographs of these root systems should be used in all printed material from catalogues to magazine ads.

Product Announcements: The RMII60 (60-cell) Propagation tray is in stock. They are in cases of 25 and 50. The price is \$2.50 each.

The RootBuilder II is also in stock. We have increased the thickness over the original material as well as changed the design. The performance of this new design is detailed in the Lacebark News section

We will be introducing a new line of RootTrapper[®] containers at the summer trade shows. It will be called RootTrapper[®] II containers. These SoftSided containers not only provide the root pruning, water conservation where it is needed, but also water evaporation where it is needed. Dr. Whitcomb detailed the benefits and features of this new line later in this newsletter.

We have a new 1-gallon round. It is slightly larger than the original 1-gallon. If you liked the performance of the old container, you are going to really like this improved container.

Summer Shows. We want to invite everyone to visit us at the up-coming summer shows. Direct links to the shows can be found on our web site, www.rootmaker.com.

July

PANTS, Ft Washington, PA, July 27-29, Booth # 2615

August

SNA, Atlanta, Aug 12 - 14, Booth # 2901

Nursery/Landscape Expo, Houston, Aug 20-22, Booth #5812

FarWest, Portland, Aug 26-28, Booth # 12053

September/October

FNATS, Orlando, Sep 30-Oct 2, Booth # 2706

MTNA, McMinnville, TN, Oct 1-2, Booth # 252

December

Great Southern Tree Conference, Gainesville, Dec 2-3

Grower Note: Mike Richardson of Richardson Farms in Leander, Texas contacted us about forming a national RootMaker® Growers Association. We informed him that we would support his efforts in doing this. Anyone interested should call Mike at 512-446-7791.

Steps to Maximize Root Branching

By Dr. Carl Whitcomb

With each shift to a larger container, a good rule of thumb is a distance of about 4 inches between the sides of the smaller container and the larger container. As with the pruning of a branch, when a root system is pruned by air, constriction, or root-tip-trapping, the branching occurs behind the pruned surface to a distance of about 4 inches. With a shift to a container with a difference *greater* than 4 inches, a significant root pruning opportunity will be missed. A shift to a container *less* than 4 inches may not be worth the time and expense. The root system will reach the root-branching side-wall sooner, but this newly created fibrous root system will also exhaust the container volume sooner and will soon require an additional shift to maintain the root-branching and growth momentum.

RootMaker®s are intensive production tools, creating a fibrous root system superior to conventional production methods. To maximize the potential of this system, timing should be given careful consideration. Generally, plants in RootMaker®s are not shifted soon enough. Nurserymen are accustomed to “holding” slower-growing plants in less efficient, smooth containers, which create circling root systems. Realize the potential of RootMaker®s at every step in production. Once plants create a fibrous root system, send them on their way with a shift to the next step.

Step 1. A fibrous root system starts here, in RootMaker® II propagation containers 18-, 32-, 60-cell, or the original 4-pack.

Step 2. The RootMaker® RMI-1R, RMI-1S, RMI-3R, and RMI-5G plastic containers; FC5, FC8, FRC5, and FRC8 fabric containers; RT5 RootTrapper® containers are all options. Perhaps the most efficient use of space and time is shifting directly to a 3-gallon (RMI-3R), which gives the ideal sidewall distance of about 4 inches. A shift to a 1-gallon round or square will branch sooner but will also run out of space sooner and require additional shifting.

Step 3. The options for this step are Knit Fabric or RootTrapper® containers, creating a sidewall distance of 3” to 5”. For field planting, the Knit Fabric containers range from 12” to 24”. For above ground, the new RootTrapper® 7 to 30-gallon are additional options.

Step 4. This step offers two choices in above ground containers, RootBuilder® or RootTrapper®. RootBuilder® expandable containers give the grower the greatest flexibility to obtain the 4” sidewall difference to maximize branching for containers 30 to 150-gallon. RootTrapper® containers range in sizes 30 to 60-gallon.

Lacebark News

By Dr. Carl Whitcomb

Numerous experiments are underway – as usual. A brief note about a few:

1. New weed barrier disk for containers. Last year, one application of pre-emergent herbicide lasted ALL YEAR when covered by a weed disk. Weed control was similar when herbicide was applied with the disk in position or when the disk was positioned, then the herbicide applied. The key is reducing sunlight decomposition and volatilization of the herbicide. Weed disks also conserve water. The current disks are of an entirely different material and look very promising.
2. RootMaker® II 60-cell trays are producing seedlings with excellent roots. The 60-cell tray is more space efficient compared to 32 or 18-cell trays. BUT, you **MUST** remember to transplant sooner and at a smaller plant size compared to the larger cavities. If you procrastinate, tall spindly seedlings are the result and you are back into the staking quagmire.
3. We are testing individual cells of 18-cell RootMaker® II trays for grafting. With the cells cut apart, grafting should be accomplished easily and without disturbing the fibrous root system.
4. Our second overwintering study using RootSkirts™ on 3-gallon RootMaker® containers held in place by support pots in the Up-With-Pots System worked great. As during the 2002-2003 winter, with the 2003-2004 winter, crapemyrtle, loblolly pine, shumard oak, caltapa, Cedrus atlantica, and hardy hibiscus all came through the winter with no detectable injury even though they were out of doors and exposed to all of the elements. The lowest temperature experienced was 6° F. Plants of the same species overwintered in a poly house began growth earlier and produced undesirable soft succulent tissue.
5. The RootTrapper® II is the newest addition to the water conserving, root tip trapping container line. RootTrapper® II has the same

- white poly coating as the original RootTrapper®, except that a strip around the very base of the sidewall is UNCOATED. This increases water evaporation from the always-wet very bottom of the mix while conserving water in the upper portions of the growth medium where maintaining ideal moisture for root functions is more challenging. The test models used during 2003 worked great. This is the best of both worlds: conserve water where it is most needed and accelerate drainage and water loss where water is in excess.
6. The RootBuilder® II is also working great. When we received the first RootBuilder® samples late last year, we promptly planted trees in small sizes in the greenhouse. We have now opened those and evaluated root development. As expected, the new design is even more efficient than the original and, so far, not a single root has managed to slip by the air-root-pruning openings in the sidewall.
 7. If you grow crapemyrtle and have problems with flea beetles (small metallic beetles that appear in zillions over night), control is quick and excellent using liquid Sevin. Liquid Sevin has been superior to other chemicals.
 8. We have seedlings of 19 species underway for the growing season. With a number of species we have now reached our fourth generation (in 18 years of study). Only time will tell with which species our years of effort will yield dividends. Our river birch with white bark continues to look great.

Grower Questions / Carl Whitcomb Answers

Question: What is the reasoning behind using 50% perlite / 50% peat or aged pine bark, peat, perlite at 2:1:1 ration by volume?

Answer: The 50-50 peat and perlite mix or the 2-1-1 fine pine bark (any conifer bark may be substituted here) are strictly for the propagation of seedlings or the rooting of cutting, especially the peat/perlite mix should never be used in 1-gallon or larger containers. The reason for this more expensive mix and much greater porosity / air space is due to the fact that the initiation of roots is far more oxygen dependent than for the same root after it has matured. I liken it to having an infancy phase and an adult phase. The infancy phase lasts for several weeks or months following seed germination or the rooting of a cutting. But, once past that phase, the plant is better off with a container growth medium with drainable pore space in the 25% range initially and that holds more moisture to support growth.

The other thing about this infancy phase is a very high INTOLERANCE to ammonia and any ammoniacial source of nitrogen. On the other hand, once in the adult phase, the nitrogen source can be all IBDU or UF or sulfur coated urea and no problems.

To either mix, ALWAYS ADD 1.0 pounds of Micromax micronutrients and Osmocote 18-6-12 at a rate of about 6 to 8 pounds per cubic yard (No Substitutes). Between the two additions, all elements are supplied that the plant needs except for calcium and magnesium. The Ca and Mg are typically sufficient in irrigation water to supply these, plus there is typically a modest amount in the mix components, and in this early stage of development, not much is needed. The exception would be where the irrigation water is acidic and contains less than 20 PPM calcium.

Question: I am going to be propagating in the RootMaker® 18-cell tray. Do these need to be elevated above ground or will they air prune sitting on the ground?

Answer: The 18-cell, and any of the Rootmaker® air-root-pruning trays **MUST** be elevated above the ground 12 to 16 inches to get good air-root-pruning. Otherwise, the roots will be guided to the bottom holes and will root in the ground cover cloth or out onto plastic. Not good!

I make fairly inexpensive benches using 52 inch wide by 16-foot long stock panels made of ¼ inch galvanized rods. Put the short rods UP. I place these onto treated 2 by 4's put together with screws, with a cross brace every two feet. These benches are supported on cinder blocks 16 inches tall and last for many years. If you decide to do this, make the 2 by 4 benches 53-3/8 inches wide and put one end cross piece so that the unit is 16 feet 1½ inches wide.

Some growers do temporary benches using these cattle panels simply placed on three or five-gallon pots with the open end UP as supports, but it takes quite a few pots. If you use the trays without flats for support beneath, you will need to cover the cattle panels with 1 by 2 welded wire as well.

Question: I am considering using 5" bags in cinder blocks for growing conifers. Do these trees grow well in this system?

Answer: Conifers especially love it since conifers are especially sensitive to overwatering/poor drainage. To date everything I have placed in the cinder blocks has done well, from azaleas, iris, day lilies and all sorts of trees and shrubs, including atlas cedars, junipers, etc.

Question: Can trees overwinter in cinder blocks?

Answer: Based on my work here in north central Oklahoma, trees can be overwintered in the cinder blocks

down to temperatures roughly zero. But keep in mind that the lowest humidity experienced is typically in winter, so you will need to irrigate several times during the winter. Also keep in mind that the more water in the mix, the longer it will take for temperature change to occur and possibly damage roots.

Question: How well do RootMaker® II propagation trays work for floral and vegetable propagation.

Answer: RootMaker® containers, including RMII work on annuals, perennials, vegetables, etc. just as they do on woody plants. In short, the more the root system is forced to branch the more the nutrient absorptive surface is increased, which in turn increases growth and overall plant health. Interestingly this has also increased both flower production and fruit production for the same reason – more roots.

Typically, plants grown in smooth round containers are taller and more slender and have fewer branches and flowers compared to those grown in RootMaker® containers which are typically somewhat shorter, have considerably larger stems, more branches and more flowers. In one study in 1999, I compared the growth of *Salvia splendens* in smooth round containers versus RootMaker® one-gallon containers. In this case the seedlings were purchased and had been grown in smooth, conventional two-inch pots. By the time the plants were 8 to 10 inches tall and flowering, the plants in the RootMaker® containers averaged 23 flower clusters per plant, while the plants in the smooth round containers averaged 13.

The other aspect that has been seen in some of my studies, and has been mentioned to me by a variety of customers is the fact that there are fewer losses following transplanting of young plants grown in RootMaker® propagation containers versus conventional pots. Again, the result of increased root branching and positioning of the roots to grow out into the surrounding soil following transplanting.

Question: Are the knit fabric containers beneficial for spruce trees and what would be your recommendation as to size.

Answer: Spruce and other conifers work especially well in the knit fabric containers. For reasons still unknown, spruce and other conifers produce branch roots even more rapidly that do most deciduous tree species as a result of the constriction pruning by the fabric. To grow a 4 to 5 foot spruce, I would use a 12-inch bag. For a 5 to 6 foot a 14 or 16-inch and for a 7 to 8 foot specimen, use an 18-inch, would be my size suggestions.

Question: Do you have any information on the use/success on planting container seedlings grown in RootMaker® II propagation containers directly in the field for conservation/reforestation projects.

Answer: Tree Seedlings in RootMaker® propagation containers are routinely taken to the field when they are 12 to 16 inches tall and 3 to 4 months old. This has been done by hundreds of nurseries across the country. Most do fall planting – September or October and some have drip irrigation and others do not. Drip irrigation assures nearly 100 percent survival. But even without drip irrigation, the success rate is quite high, except for the occasional severe drought immediately following planting.

When the first RootMaker® propagation container came on the market, that became the planting size and quality for many nurseries. After two or three years, I designed and introduced a square one gallon RootMaker® container. Soon that was the container of choice. It soon became evident that by buying a tree seedling in a one gallon containers, and with considerable more size (often 4 to 5 feet tall, and with some branching), that the cull rate at the time of harvest was much lower, so the shift accelerated. Then with the introduction of the three gallon RootMaker®, the shift to an even larger liner to take to the field began and that is the prime item of choice by many nurserymen at the present time. The situation is that in the small growth stage, telling seedlings that will make winner trees from culls is tough and the cull rate may be as high as 25 to 30% or more for oaks. On the other hand, for oaks in one-gallon containers the cull rate drops to 7 to 10% and 2 to 3% with three gallons. It is this reality that has driven nurseries to the larger liner size to take to the field.

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RootMaker® Products Company, LLC

Huntsville, Alabama 35815

1-800-824-3941

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