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6:00 am to 3:30 pm Office
6:00 am to 2:30 pm Yard/Will Call
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Roots Meet Their Match

Girdling Roots

Nursery managers are very familiar with the potential problems associated with growing trees, and to a certain degree shrubs, in conventional starter containers known in the industry as liners. As seedlings germinate, often the taproot (or if you prefer, the initial root) will grow quickly to the bottom of the shallow liner pots and turn back upward. Often the initial root can become kinked in the liner, or worse, the root encircles the soil in the liner. Left unchecked this seemingly small problem can create a serious defect in a tree at a very early age. This flaw will remain with the tree for life.

In the landscape industry, roots that encircle the trunk are known as Stem Girdling Roots (or SGRs). Once the defective trees with SGRs reach the landscape the problem may manifest itself as stunted growth or a noticeable decline in tree health. Often the problem lies dormant for many years and the trees perform nicely with few problems. Then without warning the tree snaps off at ground level during periods of high wind. The trunk appears as if it had been placed in a pencil sharper and sharpened to a point. This is where the SGR will be present, constricting the trunk.

Stem girdling roots are something every nursery attempts to avoid. We do so by constantly monitoring the seedling crop and through the elimination of inferior product. Efforts to prune roots may be detrimental to some plants and is labor intensive. The use of extra-long root tubes has helped with certain plants but they are often difficult to transplant.

As we grow and learn in this industry it seems there is always someone perfecting nursery production. One of the innovators in the industry is Dr. Carl Whitcomb. He has offered sage advice to the trade through his talks and books for many years. Dr. Whitcomb is also an inventor that has introduced numerous products to grow better plants. We at Mountain States are fortunate to have implemented several of Dr. Whitcomb's production methods to grow superior trees and shrubs. In this newsletter we will focus on the Whitcomb root-pruning container system known as RootMaker® and RootTrapper®.

Encircling Roots
Photograph by Russ Thompson

(continued)

UPCOMING EVENTS / NOTICES

May 19
15th Annual Desert Horticulture Conference, University of Arizona Cooperative Extension
Tucson Convention Center, Tucson, AZ
Info: Contact Jack Kelly at 520.626.5161

Great News!
In case you have not heard, Peter Gierlach (aka, Petey Mesquitey) is joining the Mountain States team. Many of you may know Peter from his past personal performances across the Southwest. He is well known for his Growing Native radio show at KXCI Community Radio in Tucson where the tag Mr. Mesquitey was coined. He spins a darn good yarn, recites eloquent poetry, and sings a few bars of country music all the while vividly describing the southwest. But best of all, Peter is a plantsman. Self taught, Peter has a long history of working with plants and people in southern Arizona. We persuaded Peter to join the production team at our Cochise County facility where he will act as a grower and liaison to our sales force in Phoenix. We welcome Peter and look forward to working with him.

More Great News!
Hoffman Carlos, our intrepid transportation manager, is a father! His lovely wife Maritza gave birth to a baby boy named Uziel Hoffman Carlos on April 19th, weighing in at 8 pounds, 11 ounces, 20.6 inches long and a full head of hair! Congratulations Maritza and Hoffman! And welcome to our family Uziel!

Welcome Back! One of our regional delivery drivers, Dave Kampfe, is back to work after recovering from hernia surgery. We really missed Dave during the spring rush, but are glad that he is back on the road again.

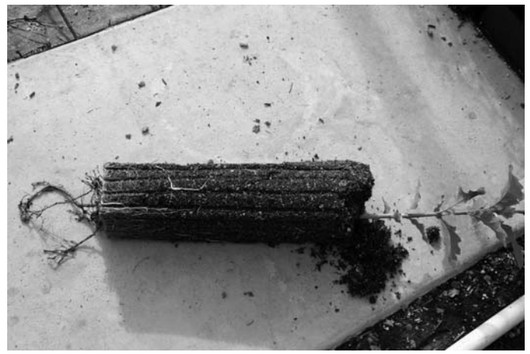
RootMaker® Seed Flat
Note the unique design

We were excited to see the results from our tests with the Whitcomb RootMaker®. Seedlings grown in the Whitcomb system developed fibrous, non-circling roots. With a higher density of roots the seedlings become more efficient in the uptake of water and nutrients. The seedlings exhibit improved vigor and rapid establishment during the transplant process. This method has proven effective for a number of tree species including mesquite, acacia and oak.

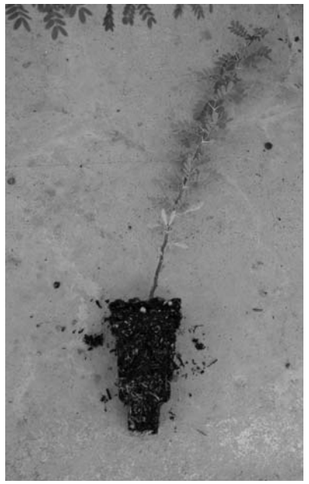
The technology behind the RootMaker® container is simple. It is based on the air pruning of roots. The RootMaker® seed flats have a unique shape which directs the roots to large openings in the cell. When a seed germinates the primary root grows quickly in a downward manner with little side branching. In the RootMaker® the primary root arrives at the bottom opening where it is exposed to air, causing the tip of the root to dehydrate and stop growing. In response to this air pruning, the initial root develops secondary roots that have a horizontal growth pattern. These secondary roots head outward where they encounter additional openings on the sides of the container and the air pruning continues, creating additional branching. The result is a much denser root system.

We have found the Whitcomb System® to be very effective for seedling tree production. Many of the trees that we produce today were started in the RootMaker® containers. In fact, we have taken the next step by adopting the RootTrapper® for field production of trees. So far we have had exemplary results with a number of oak species.

The RootTrapper® container is composed of a soft-sided knit fabric material constructed in a round, pot-shaped manner. We have adopted the use of this container for in-the-ground field production. Roots that reach the perimeter of the bag can extend through the fabric into the surrounding soil but are unable to expand in diameter. The fabric constricts the root at this point initiating branching behind the constriction. The result is a much denser root system that is almost completely contained within the container.



Conventional Seedling
Note roots emerging at the bottom of the plug



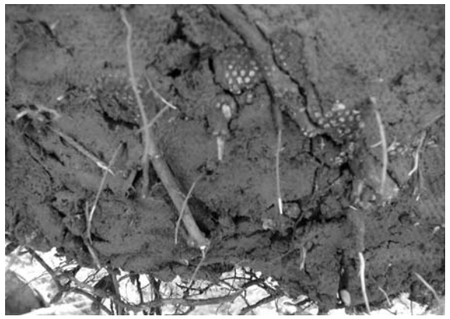
RootMaker® Seedling

We have trialed this container by placing them in the field buried almost to the top of the fabric. In several years when the trees are ready for harvest, we simply dig up the fabric bags, removing the root ball from the Knit Fabric In-Ground Containers and installing the trees in a conventional plastic tub or wooden box. Once the trees have acclimated to the new container they are ready for shipment and sale. The result is a healthier tree with a much denser root system compared to conventional field dug material. The vast majority of the root system goes with the tree instead of remaining in the field.

Of course to prevent Stem Girdling Roots, trees grown in the field using the Knit Fabric In-Ground Containers must have been grown at the seedling stage in the RootMaker®, otherwise the potential for root problems remain. We are utilizing the new field growing process for a wide variety of plant materials at our Cochise county facility. We will keep you updated on our progress with the Whitcomb growing methods.

Fabric-In Ground Container

Rootball with Fabric Peeled Away



Rootball Close-Up