

Air-based root-pruning pot systems are helping growers produce trees with healthier roots.

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Finally, sighs tree horticulturist Alan Heinrich, roots are starting to get the attention they deserve.

As Heinrich steers his pickup past acres and acres of containers crowning the rolling hills of the Cherry Lake Tree Farm in Groveland, FL, he predicts that landscape contractors and other wholesale buyers will no longer settle for trees produced in traditional black pots. The future, he says, is in air-based root-pruning pot systems.

At Cherry Lake's 800-acre operation, Heinrich practices what he preaches. The site of a traditional black plastic pot – or even of a field-grown tree – is now a rare sight.

The view is similar at Joel Butler's Butler Tree Farm in Lakeland, FL, where all of Butler's production grows in containers also designed to promote root pruning. Some of Butler's regular customers say they buy his stock because his transplants establish more quickly and pose less of a trip hazard where staked trees are set within reach of clumsy (and possibly litigious) pedestrians.

To both growers, the idea behind using air root-pruned production systems is the same: growing young healthy trees with fibrous, "ready-to-grow" root systems. To Heinrich, the sight of a tight root ball crammed with short, tiny roots is a thing of beauty. He points to the bulbous shape of one terminal root tip. "Look at that," he says. "That's just loaded with carbohydrates and ready to take off."

Making The Grade

Growers like Heinrich are highly focused on the tree nursery's potential to stamp out, once and for all, the bane of circular root growth. After all, he points out, compliance with Step 10

of the new Florida Grades and Standards for trees – adopted in 1998 – calls for the culling of any container-grown tree exhibiting circular root patterns. Few buyers know this, however, Heinrich says. The old standards didn't even address the question of spiraling roots.

The horticulturists at both the Cherry Lake and Butler tree farms may be biased about root-pruning pots. Both sell proprietary pots: Cherry Lake carries The Air Pot, a European import that resembles a strip of black plastic bubble wrap; Butler sells a homemade version called the Florida Cool Ring which is based on strips of plastic fabric, fencing hardware, and a non woven mat.





Preliminary evaluations of air-pruning pots by arboriculture specialist Dr. Ed Gilman at the University of Florida's environmental horticultural department report no evidence of some manufacturers' claims that air-pruning pots actually increase density. However, Gilman's tests demonstrate that the pots "almost eliminate" instances of circular rooting that can strangle maturing trees.

At last year's Great Southern Tree Conference, Gilman's department outlined its long-term field trial of several air-pruning pot systems, including the Accelerator, The Florida Cool Ring, and the Rootmaker systems. It may take another year or two before the results are in.

Consumer Education

In the meantime, nursery growers are given the choice of complying with the state's new production standards. The problem, Heinrich says, is that so few customers know whether the expensive tree material they purchase is free of circular roots. Installers may – or may not – be taking the time to cut away such defects. The transplant may indeed look good from the crown up, but may never really thrive.



Such neglect only contributes to the national 10-year average for urban tree survival, Heinrich adds. The only real solution to such a poor statistic is a better-educated consumer.

"We need to get the word out to the end users – the customers we're really growing trees for," Heinrich says. Tree farms' marketing staffs are perhaps in the best position to sell consumers on the benefits of root-pruning pots. Landscape architects, for example, appear to be learning and are starting to spec out plant material that meets Florida Grades and Standards. Compliance with the revised standards "is the right thing to do," and air-pruning pot systems fit this quality approach, Heinrich adds.

Heinrich figures there is plenty of room for improvement. He estimates that only about 4% of the nation's growers are using air-pruning pots.

Although Cherry Lake's air-pruning experience has focused on tree production, Heinrich thinks there may be additional potential for woody ornamental growers.

Ongoing Efforts to Eliminate Circular Roots

At Cherry Lake Tree Farm, the effort to eliminate circular roots starts in the mist house. There, Propagation Team Leader Mike Roe makes use of liner trays with the vertical ribs protruding on the inside. Any errant seed that tries to send out a circular root will be forced to grow downwards. Roe, as do many growers, first sprays his empty seed trays with a copper hydroxide pain compound (Griffin Corporation's Spin Out) to curb the growth of ambitious roots and to promote development of more fibrous secondary roots.

Roe points out that growers placing such a seedling into a traditional pot stand to lose the early advantage that such a liner provides. From start to finish, the grower has to do everything he can to discourage the development of circular root growth.

That's why Cherry Lake has integrated a variety of air-pruning pots to keep root growth under control.

The nursery then transfers the liners into three-gallon Lerio pots (Lerio Corp., Kissimmee, FL.) Although they resemble a standard black plastic pot, upon closer inspection, the Lerio pots have two important differences. They are lined around the sides with a geotextile fabric ("The Pot Pruner" produced by Root Control Inc., Oklahoma City) that stops root growth at the container. More dramatic than the fabric sleeves, perhaps, is the 1-inch plastic platform drilled with holes that lines the bottom of the pot. The platform prunes roots at the bottom because holes drilled into the sides around the bottom of the pot allow for ample air circulation.

All tree species do well with the air-pruning pots, says Heinrich. Coarse-rooted species, like live oaks, however, seem to do particularly well.

Yes, up-front production costs are higher, says Heinrich. And at delivery, the pots are removed for reuse, meaning the root balls have to be shrink wrapped before shipping, which can add to the final cost.

But Heinrich testifies that with air-pruning pots caliper girth averages about 15% faster growth, and the rooting out rate is typically about 25% faster whenever material is stepped up into a bigger pot or transplanted into a landscape. Heinrich glances at the farm's pricing sheet and concedes that the farm tends to charge more than many others. It can demand higher prices simply because the farm produces superior trees.

Because he's not culling, "I can sell every one of my trees," Heinrich says, adding that he can guarantee that none of his trees will have any spiraling roots. "It doesn't cost any more to grow a tree at the top. But you need to start with the roots." In time, he predicts that air-pruning pots will inevitably become the tree nursery industry standard.

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