

✦ Arid Zone Times ✦

An Arid Zone Trees Publication

www.aridzonetrees.com

2006 Volume 12 Issue 1

Seed and Vegetative Propagation

In the mid 1980's, desert adapted landscape trees began gaining in popularity in southwestern landscape designs. Water conserving, desert-adapted trees were initially promoted primarily as an alternative to higher water demanding trees. Landscape architects quickly realized that these trees could be used in both naturalistic recreations of desert scenes and highly formal, more traditional landscape designs. Desert tree species grown from seed offered designers trees with widely varying forms and structures that would easily and naturally mimic the diversity of trees found in the surrounding desert. Formal or urban landscape designs called for trees with more uniform qualities and far less heterogeneous shapes and growth habits. Such trees could not be consistently produced in large numbers when propagated from collected seeds.

To meet the increased demand for both formal and more natural formed trees, growers use both seed and vegetative propagation methods for producing desert adapted landscape trees. Each propagation method has its virtues and shortcomings. Historically, growers have relied almost exclusively on collected seed for the propagation of desert trees. Producing trees from seed has been the preferred method for producing large quantities of plants when uniformity and horticultural consistency are not the grower's objective.

Growing from seed has the virtue of insuring that a cross section of the genetic diversity, character and horticultural qualities of desert region trees are represented within the grower's inventory. Variety in shape and form is particularly valuable for landscape designs that attempt to recreate desert settings or integrate with surrounding native desert. Large inventories of uniform or similarly shaped trees, like those desired in streetscape planting or more



Arid Zone Trees

Dedicated to providing quality trees to the landscape industry, that are appropriate to the desert Southwest.

traditional landscape designs, has been accomplished, in the past, by producing large numbers of seedlings of a given single specie.

To insure high quality and uniformity in seedling propagated species, trees that exhibit undesired horticultural characteristics (thorns, asymmetry, leaf type and number) or forms must be culled or removed from the inventory. The criteria used for culling a particular tree will vary depending on the specie being produced and the marketplace's perception of what characteristics are most desirable. Highest quality is achieved when culling is done continually in all stages of production and container sizes, beginning with liners and repeated until the inventory is brought to market (15 gallon through 54"). As a consequence, culling is an expensive, time consuming method, yet the only successful means to insure that seed propagated mature specimens exhibit the most desired horticultural qualities. An alternative to seed production is vegetative propagation (also called clonal propagation or cloning). With cloning, plant parts (typically fresh, lush, green stem growth) are treated with plant growth hormones, in an environmentally controlled greenhouse, to

encourage the formation of roots. Once rooted, cuttings are then grown like seedlings to produce new trees. In this way new plants, identical to the original "mother" plant, are produced. Rooting plant parts insures greater uniformity and reduces the need for repeated culling to remove saplings with undesirable qualities. Cloning provides a useful method for producing large numbers of genetically uniform trees with similar form, structure, flower color, leaf pattern or any other desired quality or appearance.

The challenge in bringing cloned trees to the market has always been to 1) select trees with the desired physical characteristics (branch structure, flower color and amount, foliage) that also possessed sound horticultural qualities (well-distributed root mass, cold hardiness, growth rate and form) and 2) successfully and efficiently produce these clones on a large scale. While cloned plants will exhibit all the desired physical features of the mother plants, they will also possess all the other positive and negative physiological and horticultural qualities of the parent. These qualities may go largely overlooked or unseen due to a lack of expression in young trees or masked by the absence of appropriate horticultural or environmental conditions. Careful and continual evaluation of parent ("Mother") plants for defects is essential to insure that undesired qualities like poor rooting, susceptibility to disease or insect pests, wind throw or cold tenderness are avoided. Given the diversity of environmental conditions across the "greater" desert southwest (Southern California, Southern Nevada, Central and Southern Arizona, New Mexico and Texas), growers must always be on the lookout for new, better adapted trees to add to their collection of "Mother" stock.

By using both seed and clonal propagation methods, growers can better meet the increasing demand for both formal and natural form desert adapted

landscape trees. The ultimate quality of these trees will still depend on the care and attention given to the selection of propagation material (seed or vegetative) and the attention paid to sound growing and production quality control practices, as well as sound horticultural procedures in the landscape.

Arid Zone Trees (AZT) began its research on cloning desert trees with two principles in mind. First, that there are many individual trees within a given tree specie that may exhibit desirable characteristics for landscape applications. And second, that all trees developed and marketed by AZT need to possess both desirable physical and horticultural characteristics. To satisfy both goals we em-

braced a multiple clone approach. By identifying a number of trees from within a single specie with desirable characteristics, we can offer uniformity while maintaining some genetic diversity. The search for new trees to clone continues and offers the opportunity to introduce new clones when suitable selections are identified.

We use the 'AZT' variety name on all our cloned trees to allow us to add new selections as they are identified while still assuring our clients that all selections are the product of our screening and evaluation process. All 'AZT' varieties epitomize Arid Zone Trees' commitment to quality and innovation.

Arid Zone Trees makes selections from thousands of trees propagated

from seed. Only individual trees having the most desirable physical qualities (branching habits, leaf color, leaf canopy, and flower color) and sound horticultural characteristics (rooting, cold hardiness and growth rate) are selected for further study. These trees are then cloned (vegetative propagated) and planted at our nursery for additional evaluation. The best of these trees are added to our clonal production scheme and only then are they designated Variety 'AZT'. Since no one single selection of any desert tree specie is best adapted to all landscape applications, we continually search for new additions to our Variety 'AZT'.



Cutting liner ready to plant



Clones bumped to next production size



Cutting flats rooting in greenhouse

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