

Arid Zone Times

An Arid Zone Trees Publication

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Preventing Wind-throw

For nearly 40 years, Thornless Hybrid Mesquites (a.k.a. Chilean Mesquite or *Prosopis chilensis*) have been among the most popular and widely planted trees in the desert landscape palette. Few trees have been more instrumental in popularizing desert-adapted tree species in southwestern landscape designs. By providing abundant shade, a lush green leaf canopy and graceful fissured brown trunks, Thornless Mesquites were among the first trees to demonstrate that desert landscapes could be lush, cool and inviting.

As the common name indicates, trees are thornless, making them ideal for landscape applications from re-vegetation of disturbed desert sites to streetscapes, park plantings, golf courses, commercial and residential landscapes. The form and texture of Thornless Hybrids blend almost seamlessly with surrounding native desert trees and shrubs. They are easily incorporated into urban landscapes and are increasingly being used in more formal or traditional landscape designs.

Mesquites can grow to 20 to 40 feet tall and as wide with symmetrical, dome-shaped, spreading canopies. Cold hardy to 10 to 15 degrees F, they can be planted throughout most regions of the desert southwest. Once established, trees are semi-deciduous, losing only a portion of their leaves in warmer winters in the Phoenix, Arizona and Palm Desert, California areas. Las Vegas, Nevada and Tucson, Arizona will have a little more leaf shed due to the lower winter temperature typical of those communities. Leaves remaining through the winter are shed rapidly in spring just prior to bud break.

Many of the qualities that make this species so popular are thought to contribute to its tendency to blow over in heavy winds. Some clones and seed selections of Thornless Mesquite have been more prone to wind throw than others. Wind damage is NOT an unavoidable horticultural shortcoming of the Thornless Hybrid Mesquite.

By following sound horticultural practices from initial design (planting and irrigation details), to installation and establishment, (see Jimmy Tipton's, "Planting Guidelines: Container Trees and Shrubs," University of Arizona Cooperative Extension Bulletin AZ1022), the incidence of wind throw in all landscape trees can be significantly diminished.

Improving water distribution throughout the rooting zone will promote root exploration and aid the development of a dispersed root system. Proper planting involves excavating a planting area 3 to 5 times the width, but no deeper than, the size of the root ball (or box). Where soil structure slows or limits water penetration, auger a drainage chimney through the hardpan then position the root ball to one side of the chimney (not directly over it). With most desert species amending the backfill is unnecessary and not recommended.

Irrigation systems that are designed and installed to serve the long and short-term water demands of the tree, will promote a dispersed, vigorous root system. Roots only grow into moist soils. Installation of 12 emitters in the "X" pattern (with the first emitter near the trunk then additional emitters every 3 to 4 foot on centers) will distribute water throughout the trees developing root zone. This emitter ar-

rangement will deliver water from the root ball to beyond the tree's growing canopy, encouraging feeder and stabilizing roots to grow out from the original root-ball. Root growth occurs throughout the year. With appropriate watering in the summer months, growth can advance beyond the trees canopy in 30 to 60 days. Emitters near the trunk help settle and compact the soil above the fresh root ball. As the tree matures emitters near the trunk should be closed in favor of emitters near the outer edge of the expanding leaf canopy.

Trees should be staked only when absolutely necessary and then only briefly. Stakes should be removed as soon as possible.

The goals of any pruning program should be to establish a balanced branch structure, encourage the development of trunk and branch taper, keep top growth proportional to root development and reduce wind resistance. This can be accomplished with frequent light pruning of the canopy, removing about 20% at any one time. Concentrating 80% of the pruning on the outer 20% of the canopy will promote branch taper while opening up the canopy to light and wind.

Most desert-adapted species, Mesquites included, are opportunists, capable of generating significant vegetative growth when environmental conditions, like seasonal rains, are favorable. In the urban landscape we try to optimize growth by providing supplemental, and at times excessive, water and nitrogen on a regular schedule. Such practices promote excessive vegetative growth that is often not in balance with the root system. Both water and nitrogen, judiciously applied, can be very effective tools for managing the growth rate and ultimate size of these trees.

Tree form or structure also plays a role in wind throw. Many architects will specify standard or single trunk mesquites along pedestrian paths, parking lots or street frontages thinking that multiple trunk and low branching specimens will interfere with foot and car traffic. Properly selected and shaped, low-branching, upright trees occupy no more space in the landscape than do single-trunk specimens. Retaining this attractive, more natural, multiple trunk form provides easy pedestrian access, offers ample shade, essential structural support and lowers the risk of wind throw without compromising the other uses of the landscape.

Wind throw is not a horticultural problem unique to Thornless Mesquites. All the recommendations listed above are equally applicable to any tree in the landscape. The long term economic benefits of these practices far outweigh their initial cost, particularly when the consequences of not following them results in replacing the tree 3 to 5 years later. Proper planting, pruning, irrigation and fertilization are all keys to vigorous long lived trees.

Thornless Mesquites are the Evergreen Elms of the desert landscape palette. Their dense canopies, fast growth, desert elegance and adaptability to a wide array of landscape applications insure that they will continue to be an essential part of our desert landscape aesthetic. With proper care, from installation to maturity, they will remain vigorous and attractive for many years. Maintaining trees at the proper planting depth is not a concern limited to transplanting. Crowns can also become buried as a result of planting activities around the base of a trees (color shrubs, seasonal plants, ground covers), changes in site grading, improper site drainage or with the addition of hardscape elements. Landscape professionals should recognize the potentially detrimental effect of these kinds of activities on the crown and the long term health of the tree.