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(seedless) watermelon fruit. The treatments with one pollenizer cultivar included 'Companion', 'Super Pollenizer 1' ('SP1'), and 'Summer Flavor 800' ('SF800'). The treatments with a combination of two pollenizers included 'Companion' + 'SP1', 'Companion' + 'SF800', and 'SP1' + 'SF800'. Plant arrangement was compared by planting 'SF800' in a hill and inter-planted method. Transplant timing of pollenizers was compared by planting 'SP1' at the same time as the triploid plants and 3 weeks after triploid transplanting. The final treatment contained no pollenizer to determine if there was pollen movement between plots. There was some pollen movement between plots; however, it was minimal as fruit set in the no pollenizer plots was less than 12% of the highest yielding treated plot. For the individual pollenizers in 2005, plots with 'Companion' had the largest individual triploid fruit weight compared to 'Mickylee', 'SP1', or 'SF800'. 'Companion', 'Mickylee', or 'SP1' resulted in greater marketable triploid fruit yield than 'SF800' in 2005. In 2006, using only 'Companion' had greater yields than 'SF800'. 'SF800' had fewer triploid fruit with hollow heart than 'Companion'. Combining 'SP1' or 'SF800' with 'Companion' decreased individual fruit weight in 2005 compared to 'Companion' planted alone. However, combining 'Companion' + 'SF800' increased individual triploid fruit weight compared to 'SF800' planted alone. 'SF800' + 'Companion' in 2005 and 'SP1' + 'Companion' in 2006 increased marketable yield compared 'SF800' or 'SP1' pollenizers planted alone. Planting pollenizers in the hill decreased triploid yields compared to inter-planting the pollenizer. Transplanting 'SP1' 3 weeks after the triploid plants decreased marketable yields and increased the severity of hollow heart in the triploid fruit. Growers should consider pollenizer selection, planting arrangement, and time of transplanting to optimize triploid production.

**Staking, Guying, and Root Ball Anchoring: The Efficacy of Tree Stabilization Systems Installed on Recently Transplanted Trees**

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Recently transplanted landscape trees are prone to destabilization from wind gusts. Various forms of staking and guying are used to prevent tree destabilization, but little scientific evidence exists for their efficacy. In this experiment, the efficacy of three generic tree stabilization systems (TSS) was tested. In Spring 2006, 24 balled and burlapped white ash (*Fraxinus americana* 'Autumn Purple') were transplanted to a field site in Blacksburg, Va. At planting, one of four TSS treatments (staking, guying, root ball anchoring, or control) was installed on each tree. Five weeks after planting, destabilization tests were conducted on the trees using a cable winch mounted to a skid-steer loader. First, a force simulating a 55 mph wind gust was applied to each tree. Destabilization was significantly greater for control trees (mean of 16° from vertical) than for trees with TSS (all means less than 3° from vertical). However, there was no significant difference in destabilization among TSS types. Each tree with a TSS was then stressed to complete system failure. The guying system endured significantly greater force before failure than the staking and root ball anchoring systems. The staking system endured significantly less force than the other two systems. The material costs and installation time for each TSS were also evaluated. The staking system was twice as expensive ($7.03) as the guying ($3.31) and root ball anchoring ($3.00) systems. All three systems took between 5 and 6 minutes to install. The guying system required significantly greater time to install than the root ball anchoring system, which did not significantly differ from the staking system. Based on our results, TSS protect recently transplanted landscape trees from destabilization by heavy wind gusts. From a practical standpoint, there were negligible differences among the TSS in terms of failure force and installation time. However, the staking system was twice as expensive as the other two systems, which may warrant consideration when choosing a TSS.

**Response of Texas and Florida Live Oak (*Quercus virginiana*) Seedlings to Water Deficit Treatments**

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Live oak (*Quercus virginiana*) is a common landscape tree in much of the United States. Although in native areas live oak can be found in mesic and xeric climates, little research has been conducted to determine if provenance differences exist in the response of live oak to deficit irrigation. Therefore, this research investigated gas exchange in response to water deficit irrigation treatments of live oak seedlings from a mesic region Groveland, Fla. (USDA Hardiness zone 9), and a xeric region, Justiceburg, TX (central Texas) (USDA Hardiness Zone 7). In May 2006, 1-year-old live oak seedlings were shipped to Texas Tech from Groveland, Fla. Acorns from Justiceburg were collected from several trees in Oct. 2005. Acorns were germinated and planted according to standard nursery practices. In June 2006, all seedlings were placed outside under shadecloth for 2 weeks and then in full sun for a month to acclimatize. Twenty-one seedlings from each location were brought into a greenhouse, assigned one of three watering treatments (control seedlings were watered every day; moderate water deficit seedlings were watered every other day; and severe water deficit seedlings were watered every fourth day), and arranged in randomized complete blocks. Mid-day stomatal conductance and leaf temperature were measured every fourth day prior to irrigation of severe drought seedlings. Outdoors, prior to irrigation treatments seedlings from Texas had greater stomatal conductance and lower leaf to air vapor pressure deficit (LVPD) when compared to seedlings from Florida. In the greenhouse, seedling gas exchange was influenced by water deficit treatment and provenance. Stomatal conductance and LVPD for Texas seedlings did not differ among water deficit treatments. However, Florida seedlings exposed to severe drought had lower stomatal conductance and a greater LVPD than seedlings exposed to control or moderate irrigation treatments. Regardless of irrigation treatment, seedlings from Texas had greater stomatal conductance and lower LVPD when compared to Florida seedlings. Our data indicate that the response of live oak seedlings from central Texas and Groveland, Fla, differs in their response to water deficit treatments and that live oak trees from central Texas may be better adapted to xeric sites than live oaks from a more mesic environment.

**Influence of Four Salinity Treatments on Growth and Leaf Nutrient Content of Three *Taxodium* Genotypes**

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Abbreviated as BC, MC, and hybrid in this abstract, baldcypress (*Taxodium distichum L Rich var. distichum*), montezuma cypress (*Taxodium distichum var. mexicana Gordon*), and *Taxodium* × 'Nanjing Beauty' (a hybrid, BC × MC) were subjected to acute applications of four salt rates in a container study. Beginning 22 May 2006, zero, low, medium, and high rates of sea salt solutions were applied one time per week for 13 weeks (0, 17, 60, and 103 mol·m$^{-3}$). When no salt damage was evident, the decision was made to double the rate (0, 34, 120, and 206 mol·m$^{-3}$), and this protocol was continued for another 12 weeks. Plants were harvested on 15 Nov. 2006. A two-way factorial design with four randomized blocks was utilized. Irrigation between salt solution applications was via sprinkler when needed. Leachate readings via the pour-through method indicated that only one sprinkler irrigation was needed to bring substrate conductivity down to just above background. During the 24-hour exposure periods, roots were subjected to conductivities approaching 20 decisiemens/m with the high rates. In spite of doubling the rate in midcourse of this experiment, all plants survived and few exhibited salt damage symptoms. There was no significant salt rate effect on growth, as determined by the wet weight of aboveground parts. There were genotype differences. The hybrid produced higher wet weights than BC and MC. However, MC exhibited the greatest increase in height of the three genotypes. The explanation is growth habit differences. The cutting-grown hybrid was heavily branched and plagiotropic, while MC enjoyed a strong leader. Na concentration in *Taxodium* leaves increased as sea salt concentrations increased. The K:Na ratio in *Taxodium* leaves decreased as salt concentration increased. Of three *Taxodium* genotypes, BC exhibited the highest leaf content of Na, Ca, and S; MC had the lowest leaf content of Na, Ca, and S; the hybrid was in-between. Work plans include repeating this experiment but at much higher rates, and field trials of germplasm in saline locations in East Texas.