

Container Density Does Not Affect Baldcypress Growth¹

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Baldcypress seedlings were grown in containers at densities of 10, 14, and 20 seedlings per square foot. Growth differences due to sowing density could not be detected after the first year in the field.

Baldcypress (*Taxodium distichum* (L.) Rich.) is a large tree that grows best on deep, fine sandy loam soils with good moisture and moderately good drainage. It is rarely found naturally in such areas, however, and more typically forms pure stands in swamps because of the absence of vegetative competition. Baldcypress grows in the Coastal Plain from southeastern Texas through southern Delaware. Its range extends northward up the Mississippi Valley to southern Illinois and southwestern Indiana (2).

Baldcypress, once highly prized for its lumber, is now processed in only a few mills. Natural and artificial regeneration is possible, and interest in managing cypress is increasing (3). Another important use of this species exists in the nursery and ornamental trade. More and more baldcypress is planted each year for use as street and shade trees. Its coni-

cal shape and fall coloration are prized by landowners.

State nurseries have been growing bareroot cypress seedlings for many years, but very few cypresses have been grown in containers. The Texas Forest Service in cooperation with the Urban Tree Improvement Program initiated this study to determine the effects of container planting density on the survival and growth of baldcypress seedlings.

Methods

Germinating seed from four Texas baldcypress selections were planted in "dee-pot" containers filled with a 1:1 peat-moss vermiculite media in the early spring, 1982. The containers were arranged in spacings of 10, 14, and 20 pots per square foot (fig. 1). The statistical design was a ran-

domized complete block with six replications. Between 15 and 40 seedlings were grown at each density per replication. The seedlings were grown until fall in a lathhouse at College Station, Texas.

When the seedlings were dormant, height and diameter at 2.5 centimeters above root collar were measured. Seedling from the outer edge of each treatment were not measured, since they did not represent the true container density.

After the initial growth measurements were obtained, seedlings were outplanted in the field at Storm Nursery, Premont, Texas, according to the experimental design from the lathhouse. The spacing for the planting was 6 by 4 feet. They were allowed to grow here as operational seedlings for one growing season (fig. 2). Height and diameter measurements at 15 centimeters were obtained during the following fall (1983). An analysis of variance using plot means (Procedure GLM) was used for the statistical analysis (1).

Results and Discussion

After one growing season from seed, survival averaged 99 percent for the test with an average height and diameter of 49.8 centimeters and 3.7 millimeters respectively (table 1). Even though height measurements ranged from 52.4 to 46.3 centi-

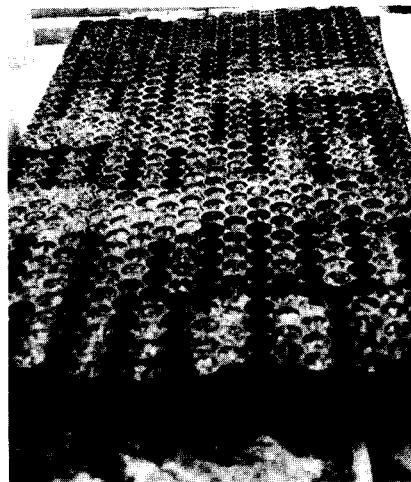


Figure 1—Container design for the baldcypress container density study.

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Figure 2—Baldcypress seedlings were grown for 1 year at densities of 10 per square foot (left), 14 per square foot (center), and 20 per square foot (right).

Table 1—Average survival and growth rates for different baldcypress container densities after 1 year from seed

Seedlings per ft ²	Survival	Height	Diameter
	%	cm	mm
10	100	52.4	4.1
14	100	50.8	3.5
20	98	46.3	3.5
Average	99	49.8	3.7

meters, this difference was not significant at the .05 probability level of significance. Also, there were no significant differences among the diameters of the seedlings. Although seedlings grown at the lower densities appeared to be larger, the differences were

not statistically meaningful.

After 1 year in the field the baldcypress seedlings grew extremely well (fig. 2). Height and diameter of the trees averaged 1.3 meters and 2.7 centimeters respectively (table 2). An analysis of variance indicated that no significant differences ($p=.05$) were found for survival, height, or diameter among container densities. Furthermore, any visual differences that may have been noted after 1 year in containers could not be observed in the field.

Conclusions

Planting densities of 10, 14, and 20 seedlings per square foot had no effect on the survival and

Table 2—Average survival and growth rates for different baldcypress container densities after 1 year in the field

Seedlings per ft ²	Survival	Height	Diameter
	%	cm	mm
10	98	1.3	2.9
14	88	1.3	2.7
20	92	1.2	2.6
Average	93	1.3	2.7

growth of the trees after one growing season in the field. Therefore, baldcypress seed can be container-grown at densities up to 20 seedlings per square foot with no expected loss in survival or growth. This enables nursery managers to grow quality seedlings in a smaller unit area.

Literature Cited

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