

Among the southern pines commonly available as nursery stock, slash has become the dominant species for sandhill planting. But is it the best? South Carolina study suggests that landowners have a much wider choice than is generally realized

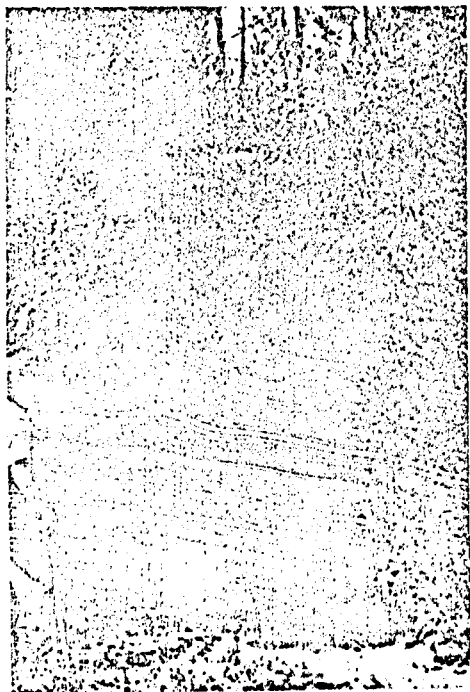
Selecting a Coniferous Tree Species For the Carolina Sandhills

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If woodland owners in the sandhills of South Carolina could choose from the many coniferous tree species that can grow in the Southeast, would slash pine still be their choice for planting cleared scrub oak lands?

Experience with slash pine has been good on all but the poorest, deepest sands. Of the four southern pine commonly available as nursery stock, slash pine far outstrips loblolly, longleaf, and shortleaf in numbers planted in the sandhills.



However, the question is often asked: "Is slash pine the best?"

The answer is inconclusive, but recent data from a study initiated by the South Carolina Commission of Forestry and the Southeastern Forest Experiment Station suggest there may be a wider choice of suitable species than is generally realized.

For three consecutive years beginning in 1955, seedlings of a variety of different conifers were planted on cleared, disked, scrub oak sites on the Manchester State Forest near Sumter. Species planted were lodgepole pine, jack pine, sand pine, spruce pine, Virginia pine, shortleaf pine, pond pine, longleaf pine, slash pine, loblolly pine, red cedar, and Arizona cypress. Two of the plantings (1955 and 1957) were on a Eustis soil, the other (1956) on a Lakeland soil. Both soils are deep sands without a clay, water-holding layer within 10 feet of the surface. The Eustis soil is somewhat more fertile than Lakeland; both are common in the sandhills.

The table summarizes performance of the species in terms of survival, height, and diameter growth 10 years after planting. Just half of the 12 species in the test — longleaf, pond, slash, shortleaf, and loblolly pine and redcedar — were planted each of the three years.

Survival and growth for all species were generally higher on the Eustis soil

The study indicates that redcedar, shown here, mixed with pine, deserves a limited trial by landowners. Conceivably, such plantings could yield an early return from Christmas trees — a later return from pulpwood harvest

than on the Lakeland sand. With the exception of lodgepole and jack pines, all species survived in adequate numbers on both soils. Loblolly pine was the largest tree on the Eustis plantings. Although the one-foot height difference between it and slash pine was not significant in the 1955 planting, the 7-foot difference in the 1957 planting definitely was. Of the remaining species, slash pine was the second largest in 1955 — and pond pine second largest in 1957. On Lakeland soil, slash pine was significantly taller than other species — as much as 4 feet taller than loblolly pine.

On the basis of the 10-year results, tentative suitability ratings of the 12 species for planting in the sandhills are as follows:

Species recommended for planting:

Slash pine — survival was good to excellent. Growth was good to excellent on Eustis soil, and acceptable on Lakeland.

Loblolly pine — survival was good to excellent. Growth was excellent on Eustis soil, but poor on Lakeland. This species is not as widely planted as slash pine, probably because it is a slow self-pruner and because of its susceptibility to tip moth. This insect was no longer a problem when the trees were 10 years old, and it apparently had not retarded growth. In view of loblolly performance in this and other tests, it deserves serious consideration as a species for the sandhills, especially on better sites.

Longleaf pine — survival and growth were generally acceptable; along with

slash pine, it made the best growth on Lakeland soil. Studies have shown that longleaf, the only pine species native to the Carolina sandhills, can perform very well with adequate site preparation, good nursery stock, and careful planting. Furthermore, once seedlings begin active height growth, the trees are little troubled by disease or insects. This cannot be said for either slash or loblolly, on which fusiform rust especially can be bothersome.

Species showing promise for special purpose plantings:

Redcedar and Arizona cypress — survival was excellent on Eustis soil and good on Lakeland sand. Crowns of the trees were full and well-shaped. These are not sawtimber or pulp species; however, they have been planted for Christmas trees and fence posts.

Species showing fair to good growth but not presently recommended for planting:

Sand pine — survival was acceptable but growth was marginal. Several other test plantings of this species have been made in the sandhills, and results of some of them suggest that growth may be acceptable on better sites. Suitability is still to be determined.

Virginia and shortleaf pines — survival was good to excellent on both soils; growth was acceptable on Eustis but marginal on Lakeland. These species can probably grow on better sites but, judged by their showing in these plantings, growth rate will not approach that of slash or loblolly pine.

Pond pine — survival was generally good. Growth was excellent on Eustis soil but poor on Lakeland. This species is usually associated with wet, poorly drained sites. Its good performance in this test was surprising, and indicates a high growth potential that may have been overlooked previously in the sandhills. Proper evaluation will require additional test plantings.

Species not recommended for planting:

Lodgepole and jack pines — survival and growth of these two northern species were unacceptable.

Spruce pine — survival was acceptable, but its growth was poor. This species is commonly found on moist sites in the middle and lower coastal plains, so its performance on the sandhills sites was not surprising.

As pointed out by Charles E. McGee in an earlier report of this study (*Forest*

TABLE 1

Height, diameter, and survival at age 10 of species planted on two sandhills sites on the Manchester State Forest, South Carolina

	Height (feet)		Diameter (inches)		Survival (percent)				
	Eustis Soil	Lakeland Soil	Eustis Soil	Lakeland Soil	Eustis Soil	Lakeland Soil			
	1955:1957	1956	1955:1957	1956	1955:1957	1956			
Lodgepole pine	—	1.0	0.0	—	0.0	0.0	—	2	0
Jack pine	—	—	3.8	—	—	0.0	—	—	36
Sand pine	—	—	9.2	—	—	1.5	—	—	70
Spruce pine	12.9	—	—	1.8	—	—	63	—	—
Virginia pine	16.6	—	10.9	3.0	—	2.2	93	—	84
Shortleaf pine	16.6	16.4	9.2	3.0	3.0	1.6	89	99	71
P J pine	17.7	21.4	12.2	3.1	3.5	2.6	74	94	59
Longleaf pine	16.9	5.5	14.4	2.6	2.1	2.5	59	60	49
Slash pine	22.1	19.0	17.3	3.2	2.9	2.6	92	69	75
Loblolly pine	23.2	25.9	13.2	3.7	3.9	2.4	90	92	78
Redcedar	10.3	13.6	9.2	0.9	1.3	0.7	99	93	76
Arizona cypress	—	14.1	—	—	1.5	—	—	88	—

¹Dashed line indicates no planting.

Farmer for November, 1964), choice of species is not determined solely by survival and growth. Another factor to be considered is the landowner's objective: whether he is interested in growing sawtimber, pulpwood, or some other product (such as Christmas trees). These results suggest that a mixed planting of pine and redcedar or Arizona cypress may deserve a limited trial by the small landowner.

Such a planting could conceivably yield an early return from Christmas trees, and a later return from pulpwood harvest.

This test has not brought to light any likely replacement for slash pine as the preferred species for sandhills planting, but the generally superior growth of loblolly on the better soil suggests we may have been missing a good alternate choice.

Studies show that longleaf, only pine native to the Carolina sandhills, performs well with adequate site preparation, good stock and careful planting



Survival of slash pine plantings, the study brought out, was good to excellent. Growth was best on Eustis soil — acceptable on Lakeland soil

