

Suggestions for Planting SLASH and LOBLOLLY PINE in Alabama's Piedmont

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FARMERS WHO want to get full production from their farms cannot afford to keep any land idle. Today there are large acreages of abandoned farm land and cut-over forest land. These acres could yield returns if they were reforested. On much of this land there are no seed trees. Hence, it will be necessary to plant trees to restock such land. The trees most commonly planted in the Piedmont Region are slash pine and loblolly pine.

Loblolly pine, commonly known as old-field pine, is native to the region. Slash pine, though not native to the region, was introduced in large quantities during the days of the Civilian Conservation Corps. Most of the trees planted by the C.C.C. are from 9 to 12 years of age. There are practically no middle-age or mature slash pines in the region. Therefore, it is not known just how satisfactory slash pine will be. However, it does show promise. It may not be as good as loblolly pine, or it may even be better. Anyone who plants slash pine should understand this.

Recently the Alabama Agricultural Experiment Station completed a study of slash and loblolly pine plantings in the Piedmont. These plantings were 5 to 13

years old. Many observations were made in these plantations. This information should be useful to those who make future plantings.

LOBLOLLY MAKES FASTER EARLY GROWTH THAN SLASH

On planting sites with more than about 3 inches of topsoil, slash pine grows slightly slower than loblolly pine for the first 9 to 10 years. After that, slash grows slightly faster than loblolly. Observations were not made on plantations older than 13 years of age. Many of the plantations in the Piedmont are single-row mixtures of slash and loblolly pine, which were planted by the C.C.C. In these plantations, every other row is slash pine and the rows between are loblolly pine. Because of its slower early growth, much of the slash pine in these alternate-row mixtures is already overtopped by the loblolly. In time, the slash pine will die unless some of the loblolly is thinned.

Because of this, it is not recommended that the two pines be planted in alternate, single-row mixtures. If an owner wants mixed stands, he should plant three to

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five rows of slash alternately with three to five rows of loblolly.

SURVIVAL of SLASH LOWER THAN LOBLOLLY

On an average, 53 out of each 100 trees lived in the slash pine plantations studied. In contrast, survival in the loblolly plantations was 83 out of each 100 trees. Throughout the study, slash pine had a consistently lower survival rate than loblolly pine. It is usually cheaper to take care of expected losses by using a closer original spacing than to replant. Hence, it is recommended that slash pine be planted closer in the rows than the final spacing desired.

It was observed that many plantings failed because they were delayed until very late winter or early spring. Seedlings must be planted as early as possible after the winter rains begin. This allows time for them to develop enough to withstand the dry weather that often follows during spring and summer.

CARE and PLANTING of SEEDLINGS

Evidence gained from landowners showed many plantation failures to be caused by:

- (1) Improper handling of seedlings after they are received.
- (2) Careless or incorrect planting methods.

After receipt of seedlings, it is well to examine them. Seedlings with green tops (without slight yellowing) and wet roots may be assumed to be in good condition. It is a waste of labor and materials to plant seedlings that are not in good condition.

Seedlings received in good condition must be handled carefully until planting time. If the trees are to be kept for only a day or two before planting, the bundles

can be slightly loosened, sprinkled with water, and left in a cool, shady place. To be kept longer, the trees are removed from the bundles and heeled into the ground at a well-drained, shady place. The ground must be kept moist. When carried to the field for planting, the seedlings are kept in a bucket of wet muck, mud, or moss.

In planting seedlings, it is very important that the holes in which the seedlings are planted be made deep enough. The roots must not be doubled or bent. The seedling is placed about one-quarter inch deeper than it was in the nursery. There are a number of methods and various tools that may be used in planting. A planting bar is very useful for making slits in light soils. This is a long slender, wedge-shaped tool. A mattock is better for making holes in some of the heavier clay soils.

Regardless of tool or method used, the hole must always be made deep enough so that the roots will not be bent. Care must be taken to pack the soil firmly around the roots. The final hole is closed up to prevent the soil from drying out around the roots.

Southern Fusiform Rust

Southern fusiform rust is a disease of pines. It appears as long, cankerous swellings on limbs and stems of the trees. These swellings are usually covered with an orange powder during early spring. The disease damages or kills many trees, and small affected trees may be unfit for use. The cankers lower the grade of the products for which the trees are intended. Stem cankers weaken the trees so that wind blows them over. During the past 15 years, the rust has become much more common. Today, it must be considered as a hazard in growing slash and loblolly pine.

In the Piedmont study, no important difference was found between the amount of rust infection on slash pines and on

loblolly pines. From the standpoint of this disease, neither tree can be recommended over the other for planting in this region.

Fire and Grazing

Fire and grazing together were found to be responsible for more planting failures than all other causes combined. It is practically useless to plant trees on areas that are pastured regularly. Fire is extremely destructive in a young plantation. However, as trees grow older and reach sapling size, they become more resistant to fire and grazing.

Fire and grazing do not always destroy plantations. They often decrease the number of trees to the extent that no early cash returns from posts or pulpwood can be realized. The remaining trees may be so scattered that they will be large, limby wolf-trees of little value.

Plantations should be completely protected from both fire and grazing.

TREE SPACING

Future Use of Trees Determines Spacing. Future use of products from the plantation determines the spacing to be used between seedlings. The landowner must decide what uses he expects to make of his trees. Can he use or sell profitably such products as fuelwood and fence posts from early thinnings?

Spacings of 5 by 5, 6 by 6, 7 by 7 feet are recommended to landowners who are interested in products from early thinnings. For those interested mainly in sawlogs, spacings of 8 by 8 or 9 by 9 feet are recommended.

The number of seedlings required per acre at the various spacings is as follows:

<i>Spacing</i>	<i>Number of trees per acre</i>
5 by 5 feet	1,742
6 by 6 feet	1,210
7 by 7 feet	889
8 by 8 feet	681
9 by 9 feet	538

Trees planted at the closer spacings yield higher quality final products than do trees planted at the wide spacings. This is due to earlier natural pruning in the closely spaced stands. For this reason, those interested in the production of high quality poles and sawlogs should consider the closer spacings. On many farms there is a great need for fuelwood, fence posts, and stack poles. The close spacing of 5 by 5 feet will yield much more of these products than 7 by 7-foot or wider spacings.

Reforestation Cut-over Areas. Row spacings can easily be made in open areas, such as old fields and pastures. However, reforestation cut-over forest areas presents different problems. Such cut-over areas are usually partly covered by small pine trees and numerous brushy hardwoods. Slash and loblolly pine seedlings should not be planted under trees and brush. For this reason, the seedlings cannot be planted in even rows. The planting is done in the open areas, using the spacing chosen.

As in the case of open areas, the spacing is selected according to future use. The seedlings are planted in the open spaces between existing trees. Particular care must be taken to see that the seedlings are distributed evenly over the area, even though the trees are not planted in rows.

If the area has large cull hardwoods, it will be necessary to kill them by poisoning or girdling. Seedlings may then be planted under them. If the area has thick hardwood brush with no openings, it will be necessary to clean a small area for each seedling.

Severely Eroded Sites. There are many old fields where all of the topsoil and many times part of the subsoil have been lost by erosion. These sites are severely eroded. They are poor sites for tree growth; naturally, rapid growth cannot be expected.

If the erosion is continuing, these sites are special problems and must be treated as such. The main problem is the establishment of a ground cover to reduce erosion. An extra effort to control erosion is often justified. On eroded sites, spacings must be much closer than on better sites. An average spacing of 4 by 4 feet will be satisfactory on most of these sites. No even-row spacing should be used. It is better to scatter the trees around in such a way that erosion will be reduced as quickly as possible. Mulching is advisable on small areas where erosion is extremely bad and the gullies are not too wide and deep. This is done by covering the ground with pine straw, pine boughs, and brush.

SUMMARY OF RECOMMENDATIONS

1. On sites with more than 3 inches of topsoil, slash pine grows slightly slower than loblolly pine during the first few years. If a mixed plantation is wanted, three to five rows of slash pine may be

planted alternately with three to five rows of loblolly pine.

2. Since slash pine survival usually is lower than that of loblolly pine, slash pine should be planted closer in the rows than the final desired spacing.

3. Seedlings should be planted as early in the winter as possible to offset the damaging effect of dry weather that may follow in the spring.

4. Seedlings must be properly handled after they are received and must be planted correctly and carefully. The roots of the seedlings should not be allowed to become dry.

5. Protection should be given the plantation from fire and grazing.

6. If early thinnings are desired, spacings of 5 by 5, 6 by 6, or 7 by 7 feet are recommended. Spacings of 8 by 8 or 9 by 9 feet are recommended when trees are planted mainly for sawlogs.

7. On severely eroded areas, a spacing of approximately 4 by 4 feet is recommended. Badly eroded areas should be mulched.