

sub-soiling channel will blow the trees out of the ground. Generally sinking the shank and ripping to a depth of 18 to 24 inches is adequate to eliminate compaction layers and improve water infiltration. Disking is sometimes used to help break up the sod and incorporate some herbicides.



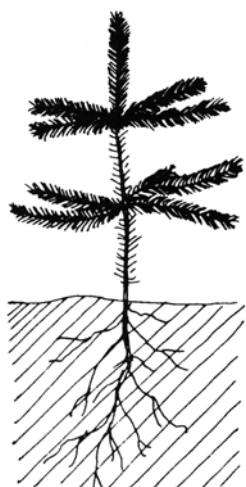
For compacted soils, a typical single shank subsoiler mounted on a tool bar should suffice for soil preparation.

Tree planting guidelines

Seedlings should be stored in a shady place and roots kept moist until planted. Trees can be planted with a mechanical planter or by hand with a dibble bar, hoedad, or shovel. Maintaining straight rows and uniform spacing are important considerations for silvopasture. If the area to be planted is sloped, make sure to plant along the contour of the site.

When planting bare-rooted seedlings, make sure the root collar (the area between the seedling's roots and stem) is even with ground level. Seedlings that are planted too deep, too shallow, or "J-rooted" (pushed into the ground with the tap root facing up) might not survive. After planting, soil should be packed around the seedling. For longleaf pine, soil should not cover the terminal bud.

Seedling success depends on proper planting



Correct way



Tangled roots



Air pocket



Too deep



Too shallow



Rocks



Turned-up roots

After planting, exclude livestock until the trees grow beyond the browse line. In the South, that is generally 3 to 4 years depending on productivity of the site. Livestock do not consider southern pines a preferred food; however, if pasture is not adequate or they are deprived of minerals, browsing on trees will occur. Also, make sure the main stem is resistant to breakage. This may be a problem, especially with longleaf pine, and the livestock may need to be deferred for an additional year.




Species

Genetically improved tree seedlings are preferred for establishment of silvopastures. It is especially important to use fusiform rust resistant seedlings if slash or loblolly pines are planted. Large seedlings grown at low density in a nursery have much more desirable root characteristics than smaller diameter seedlings grown in crowded nursery beds. Well-developed, fibrous root systems speed up successful seedling establishment. Bare root seedlings are cheaper than containerized trees, but they need to be planted during winter. Containerized seedlings work well, especially for longleaf pine, and they can be planted either during the winter or after summer rains begin. Refer to local planting guides for specific recommendations on planting times.

Ideal pine species for silvopasture include:

- **Loblolly pine (*Pinus taeda*):** Loblolly pine is the most commonly planted commercial yellow pine species in the Southeast and typically has the fastest growth of the pine species. Loblolly is suitable to plant in well drained upland areas or clay soils. Loblolly typically requires more frequent pruning as it has more branches and produces more shade than the other southern pine species. There are a number of improved varieties of loblolly pine currently available to reduce rotation length.
- **Slash pine (*Pinus elliotii*):** A good self-pruner, grows well in moderate- to poorly-drained sandy soils. Light canopy cover produces less shade. Slash pine is commonly planted throughout the Coastal Plains of Florida, South Carolina, Georgia, Louisiana, and Alabama. However, with smaller branches, slash pine is susceptible to ice damage which should be considered in more northern latitudes.

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- **Longleaf pine** (*Pinus palustris*): Much of the Southeastern United States used to be naturally covered in Longleaf pine. Due to over harvesting, replanting to loblolly pine, and fire suppression, there are few remaining natural stands. Longleaf has the highest value timber of the southern pines, but traditionally required the longest rotation length due to the “grass-stage” that seedlings may remain in without proper burning or use of herbicide to “release” the trees from this stage. New herbicides are available to release longleaf from this grass stage within one year. Longleaf can be planted in upland or wetter sites. Containerized seedlings are highly recommended for longleaf pine.

Seedlings

Seedlings can be purchased through commercial nurseries or from a State-operated nursery. Many State forest agencies maintain nurseries to supply private forest landowners with seedlings.