

## Planting Instructions for Longleaf Pine

Longleaf pine can be successfully planted using bareroot seedlings if the proper care and techniques are applied. Thousands of acres have been successfully planted in South Carolina in recent years on National forest, state forest, and private lands. Some forest industries have also begun to look at longleaf as a valid option on certain sites. However, special care beyond that required for planting loblolly is necessary for success. These requirements are: a quality seedling, special handling between lifting and planting, well prepared site, favorable weather, proper planting techniques and follow-up measures after planting when needed.

The following steps are considered essential for the successful establishment of bare root longleaf.

Begin with a quality seedling. Order longleaf seedlings as soon after July 1 as possible. Containerized seedlings sell out fast. Containerized seedlings cost more but are more forgiving as to how they are handled and planting and give good survival over a range of conditions. Bareroot longleaf seedlings do well but require careful attention to detail in handling and planting.

The next step is careful handling between the nursery and the field. Bareroot longleaf seedlings should be planted within 5-7 days of lifting from the nursery. For this reason we recommend coordinating directly with the nursery for pick-up. Containerized seedlings can be easily stored at 34 degrees for months and for shorter times at room temperature. Protect the bags from temperature extremes during transit and while planting. Avoid planting during hot dry weather. Bareroot is normally planted mid December through March and containerized planted in October to December.

A well-prepared site is also very critical

to longleaf survival. Longleaf is very intolerant to competition in its early stages. Grasses such as native wiregrass and coastal bermuda are very tough competition. Mechanical site preparation is usually the best methods when competition has thick well established root systems. Herbicides can be effective on old field sites with heavy weeds and grasses. Adequate time must be allowed for mechanical site prep such as disking or bedding to settle and absorb adequate moisture before planting.

The planting techniques include proper depth, straight tap root and compaction. Make the hole to fit the seedling; don't prune the seedling to fit the hole. Machine planting is recommended over hand planting if site is suitable.

The seedling should be planted at a depth so that after soil has settled the bud is at or slightly above the surface. Soil settlement will vary by soil type and degree of site prep. Do not cover the bud.

Good compaction is needed to eliminate air pockets around the roots. Heavy-duty machines do a better job packing than the typical hand planting crew.

Spacing and number per acre to plant will vary with landowner objective. The general recommendation is 6 x 10 which is 726 per acre. Survival of 300 or more well spaced free to grow seedlings is adequate.

Follow up after planting may not be necessary on well-prepared sites. Planted areas should be checked until grass stage is broken for possible brown spot or excessive competition. If either of these occur control measures may be needed.

## Planting Instructions for Leyland Cypress, Clemson Greenpire and Carolina Sapphire

**Handling:** Protect from wind damage when transporting. Container seedlings can dry out quickly if left in the sun. Keep containers in the shade and water daily until planted.

**Planting:** Hole should be 6-8 inches deep, 4-5 inches wide. Carefully loosen the rootball. Leave a slight depression around base of planted seedling for better water accumulation. Inspect the planting site. If there is no moisture in the soil do not plant. Soil moisture is the most important factor to consider when planting containerized seedlings. The Forestry Commission recommends September through December or March through June.

**Spacing:** For Christmas trees, space 4-6 feet between trees and rows. For windbreaks, space 10-12 feet between trees and rows. Best results are achieved by at least two staggered rows.

**Watering:** Do not allow newly planted trees to dry out. Use a heavy mulch if water is not available. Drip irrigation is ideal.

**Fertilization:** Fertilize conservatively during early spring and mid-summer. Use a complete fertilizer, such as 10-10-10. Begin by using one tablespoon per seedling per application. Observe plant response and adjust accordingly.

## Hand Planting Instructions for Hardwoods

Seedlings can be planted using a round-point shovel in a hole wide enough to accommodate the root system (10 in. wide by 10 in. deep) in mineral soil. The seedling should be planted about an inch deeper than grown in the nursery. That is, the root collar shall be planted at ground line to 3 inches below surface of the soil.

The shoot and root should be planted vertically aligned, with no lateral roots exposed. The lateral roots should be spread in a natural manner in the center of the planting hole.

The planting hole should be closed with the planting tool and the soil firmly packed around the seedling's roots to eliminate air pockets.

Seedlings should not be removed from planting bag until after planting hole is opened and then no more than one seedling at a time should be removed to help prevent roots from drying. Do not plant when surface of soil is frozen. Do not prune the roots to fit the hole. Only remove the occasional very long root.

## Machine Planting Instructions for Hardwoods

Adjust planting foot to run at minimum depth of 10 inches. Do not plant with foot raised to reduce drag or avoid bogging. If ground is too wet to run foot at 10", wait for a drier time. If planting foot is worn to the point of being too short, replace the foot.

The seedling root collar should be planted at ground line to 3 inches below surface of the soil. The shoot and root should be planted vertically aligned, with no lateral roots exposed.

Adjust packing wheels to completely close planting trench from top to bottom. Adjustments may be needed as soil type and moisture changes.

Use tractors and planting machines of sufficient size and weight to insure proper planting and packing is done. When planting in heavy soils a light tree planter will not be sufficient.

Take care in not damaging seedlings by improper handling or improperly aligned packing wheels.

Seedlings must be kept in seedling trays on planting machine, or in their original container, so the roots are well protected from dry, circulating air(wind). Roots of seedlings must be kept moist. All seedlings should be planted within two hours of the time placed on the planter.

## Hardwood Tree Planting Prescription



**Bermuda grass and other pasture grasses are a common cause of planting failure. Control grasses the summer before planting with herbicide or use a tree planting machine with a scalper to break the sod. A small turn-plow or fire-plow can be used instead to create a sod free furrow to plant the trees.**



**Herbaceous weed control (early to late summer depending on herbicide used). A carefully directed spot spray of herbicide should work in many cases. Use according to label depending on the tree species.**



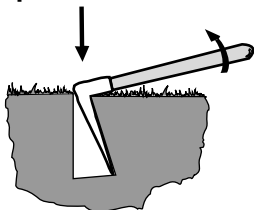
**Subsoil planting area prior to planting on old agricultural fields to break the hardpan. It also makes hand planting much easier.**



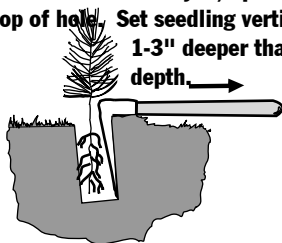
**Wider spacing is used for hardwoods than for pines. A 20' by 20' foot spacing works well.**

## How to plant with the Planting Hoe

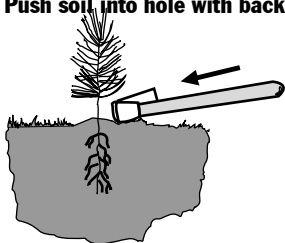
1. Drive blade into soil; lift handle to open bottom of hole.



2. Pull handle toward you, opening top of hole. Set seedling vertically, 1-3" deeper than nursery depth.



3. Push soil into hole with back of blade.

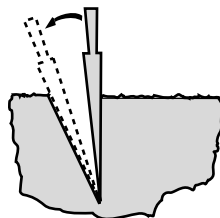


4. Pack soil firmly with your heel.

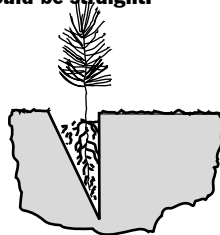


## How to plant with the Dibble

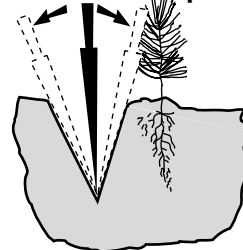
1. Push blade vertically into soil; pull handle toward you to open hole.



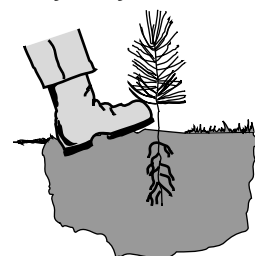
2. Set seedling 1-3" deeper than nursery depth; roots should be straight.



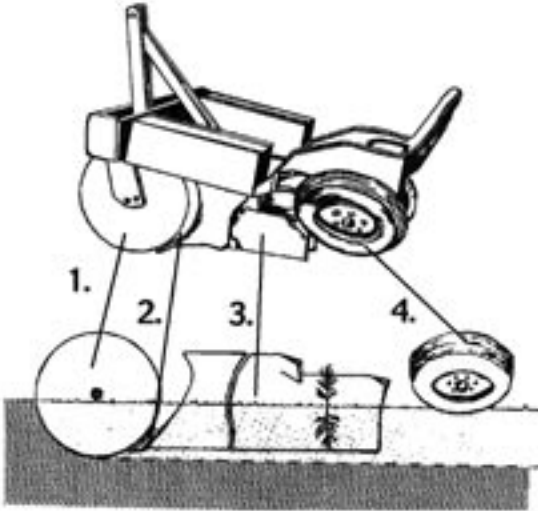
3. Push blade into soil just behind the planting hole; pull handle back to close bottom of hole, push forward to close the top.



4. Pack soil firmly with your heel.



## How to plant with the Planting Machine



1. Coulter should cut at least 9" deep. Hub should not drag in the soil.
2. Plow point should run slightly above bottom of coultter furrow.
3. Set seedling in trench 1-3" deeper than nursery depth. Roots should be straight and seedling should be vertical.
4. Packing wheels should pack soil tightly around roots, but should not depress soil more than 11/2 inches.

## Heeling In Seedlings

If you can't plant within a few days, it is suggested you heel-in seedlings. This is a good way to preserve seedlings for a short time if cold storage is not available, weather or other factors force a delay in planting.

1. Dig a V-shaped trench in a moist, partially shaded place.



2. Break bundles and spread out evenly.



3. Fill in loose soil and water well.



4. Complete filling in soil and firm with feet.



## Care and Handling

- Unload seedlings immediately upon delivery.
- Mend any holes in the bag with tape.
- Provide ventilation between bags while stored.
- Protect against freezing and direct sun.
- Storage longer than ten days is not recommended.
- Open bag only to remove trees, reclose tightly.
- Do not allow roots to dry during planting.
- Keep moist material in planting containers.