



North Carolina
Forest Service

FORESTRY Leaflets

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Recommendations for Planting Tree Seedlings

Planting a new tree seedling seems simple enough: dig a hole and plant the tree. However, several critical steps are needed when selecting, storing, handling and planting tree seedlings to sustain your forestland. This leaflet only briefly outlines some of the basic steps. For detailed specifications and explanations, please refer to the booklet "Pocket Guide to Seedling Care & Planting Standards", available from your County Forest Ranger office. You can also seek advice from a Registered Forester, tree planting specialist or the N.C. Forest Service.

Selecting Tree Seedlings

Tree seedlings are available from commercial nurseries and from the N.C. Forest Service state nurseries.

Consider these factors when selecting seedlings to plant on your forestland:

- Always select a tree species that is native to North Carolina. Avoid non-native or exotic species. Ideally, the seed that was used to grow the seedling should also come from North Carolina.
- Choose a tree species suitable for your soil, geographic location and forest management goals.
- Decide if you want to plant bare-root seedlings or containerized seedlings:
 - A bare-root seedling has no soil media on the tree's roots. This type of tree seedling has been successfully used by forest growers for decades.
 - A containerized seedling has a small plug of soil media that encapsulates the seedling roots. Only certain species may be available in containerized format.
- If selecting loblolly pine, ask your seedling provider to disclose the "PRS" rating of the seedlings. The PRS rating allows you to compare the productivity, rust infection tolerance, and stem straightness between different genetic sources of loblolly seedlings. Comparing PRS ratings of different loblolly pine seedlings can help you choose the highest quality genetically-improved seedlings that you can afford.

Storing Tree Seedlings

Generally, seedlings should be planted as soon as you receive them. However, in ideal conditions of between 35°F to 38°F, most seedlings can be stored for several weeks. One exception is longleaf pine, which should be planted within 7-to-10 days of leaving the nursery.

- Seedlings come packaged from the nursery either in paper sacks or cardboard boxes. Keep seedlings within their original package until time for planting. Keep the bag or box tightly sealed to keep moisture inside the package. Tape over any tears or holes in the packaging immediately.
- Store seedlings in a cool, damp and shaded location that is sheltered from the wind. Do not allow seedlings to freeze or come into contact with direct sunlight.
- When stacking seedling bags or boxes, provide gaps between the bags/boxes to allow air circulation. Only stack to a maximum of 3-high.

Handling Tree Seedlings

Handle seedlings with care! Seedlings are delicate and can easily snap, have their thin bark stripped off, or fine roots damaged. Do not plant a seedling that has sustained damage.

- Often the roots are coated with a water-clay slurry that keeps the roots moist in their packaging. Leave this coating on the roots.
- Do not prune or cut-off any parts of the seedling, especially its roots.

- Examine each seedling before planting. **Discard seedlings that have any of these characteristics:**
 - Broken stem or primary root
 - Mold or mildew on the needles
 - Dried-out roots
 - An undersized stem thickness at the stem/root transition. For most pine seedlings, stems should be at least 3/16-inch thick; for longleaf pine at least 3/8-inch thick; for hardwoods at least 3/8-inch thick.
 - Bark skinned off or easily rubs off
 - Warm to the touch
 - Total length of primary root is 5 inches or less.

Planting Tree Seedlings

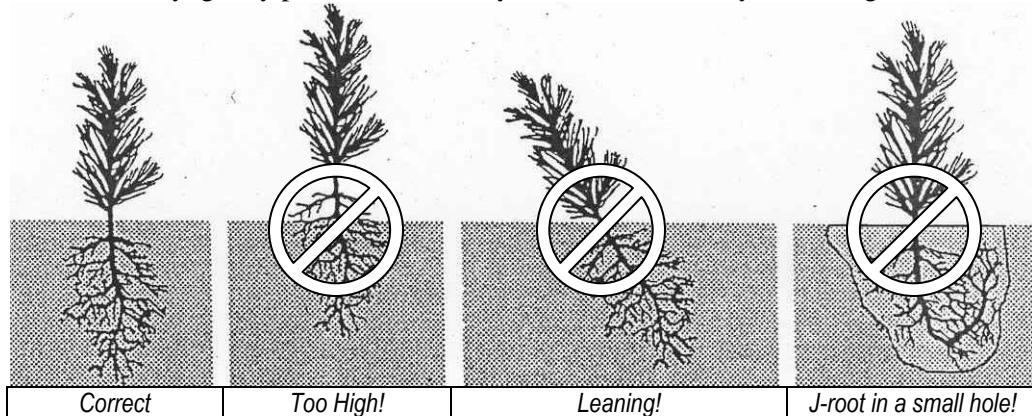
Planting is generally done during the dormant (winter) season. However, in late fall certain species may be “hot planted”, which means the seedlings are planted on your forestland immediately after being removed from the tree nursery. In addition, some containerized seedlings can be planted in late fall or early spring, depending on soil and weather conditions.

Use the correct tool for planting the seedling. Several types of digging spades (“planting bars”) can be used. A shovel can also be used. Visit the N.C. Forest Service office for your county to get free advice on selecting the right tool and a demonstration on proper use of the planting tool. Some offices may have planting bars or shovels you can rent.

Do not plant trees on days that are windy, have low humidity or temperatures above 85°F. Plant trees when soil conditions are favorable. Avoid saturated soils with standing water, frozen soils or very loose, dry soils that have little soil moisture. During the planting season, you can call your N.C. Forest Service county office to obtain the daily tree planting weather forecast.

Steps for planting a tree seedling:

1. Dig a fairly straight hole from 8-to-10 inches deep and from 4-to-5 inches square. The hole should be deep enough and wide enough for all the seedling roots to fit without forcing them in.
2. Remove only one seedling at a time from its package or planting bag. Carefully separate the seedlings to avoid damaging the roots. Examine the seedling to assure it is a quality seedling (*see “Handling Tree Seedlings” above*). Discard poor quality seedlings.
3. Insert the root system to the bottom of the hole, then slightly lift up the seedling to its desired planting depth. This technique improves the likelihood of keeping the tree roots straight and avoiding J-shaped or L-shaped roots. The “root collar” is the transition between the tree-stem and the root-stem. The root collar should be slightly below the ground surface. Longleaf pine requires that the base of the seedling bud is at ground level and the root collar is completely below ground.
4. Hold the seedling upright while closing the hole. First, insert the tool behind the seedling hole and tilt back to close the bottom of the hole. Then, with the tool still inserted in the soil, push the tool forward to close the top of the hole. Finally, gently pack the soil with your foot to close any remaining hole.



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