

## Weather Conditions & Planting

### Excellent Planting Day

- Temperature: 33°–75°F
- Humidity: 50% +
- Wind: < 10 MPH
- Soil Moisture: 75% +

### Marginal Planting Day

- Temperature: 76°–85°F
- Humidity: 30–50%
- Wind: 10–15 MPH
- Soil Moisture: 50–75%

### Do Not Plant

- Temperature: < 33°F and > 85°F
- Humidity: < 30%
- Wind: > 15 MPH
- Soil Moisture: < 50%

## Spacing Options

Objectives and site need to be considered when deciding on spacing.

### Higher Planting Density

- Economic objective
- High site index
- Results in better form

### Lower Planting Density

- Wildlife or aesthetic objective
- Low site index

Feet	Seedlings/Acre
10x10	436
8x12	454
8x10	545
8x9	605
<b>6x12</b>	<b>605</b>
7x10	622
8x8	680
<b>6x10</b>	<b>726</b>
5x12	726
6x9	807
5x10	871

Georgia Forestry Commission Central Office  
5645 Riggins Mill Road  
Dry Branch, GA 31020  
1-800-GA-TREES  
gatrees.org

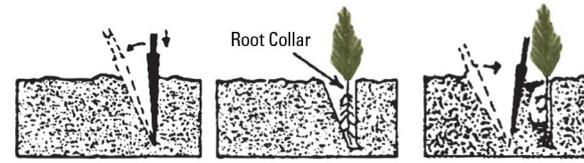
Georgia Forestry Commission Flint River Nursery  
9850 River Road  
Byromville, GA 31007  
478-508-0056  
gaseedlings.org

For more information contact your local forester.

Thanks to the US Forest Service, our partner in conservation and protection, for providing project funding.

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## Dibble Bar & Hoedad Planting

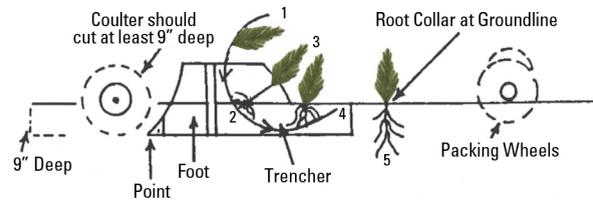


1. Insert blade straight down 8-10" and pull backward to open hole.
2. Remove dibble or hoedad and place seedling at correct depth.
3. Hold seedling in place while inserting dibble or hoedad behind seedlings then push forward closing top of planting slit.



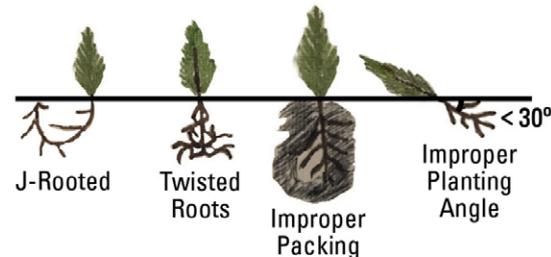
4. Insert dibble or hoedad straight down behind last hole.
5. Pull backward then push forward packing soil firmly against root.
6. Fill in last hole with heel.

## Mechanical Planting Sequence



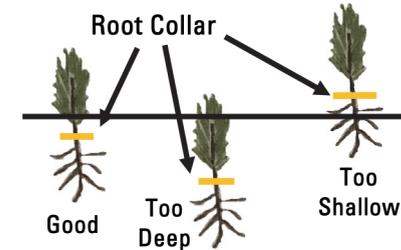
1. Hold seedlings horizontal at top of trencher.
2. Start downward arc motion.
3. Place seedling roots at maximum depth.
4. Start an upward motion to pull any J or L-root out of the seedling.
5. Hold seedling in vertical position where root collar is 1-2" below ground line until soil closes around roots.

## Common Planting Mistakes



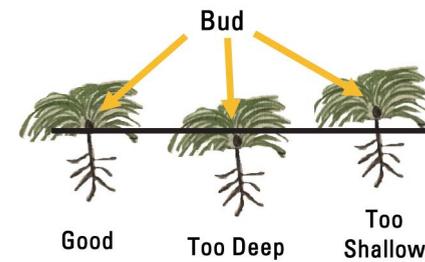
## Proper & Improper Planting Depths

### Bareroot Pine Ideal Planting Method: Hand or Machine Planting



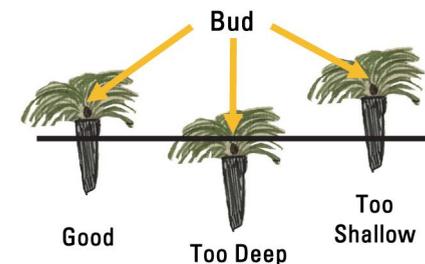
\* Seedling root collar should rest at ground level to 2-3" below the surface depending on soil drainage.

### Bareroot Longleaf Ideal Planting Method: Machine Planting



\* Seedlings should be planted with bud resting at ground level.

### Containerized Longleaf Ideal Planting Method: Hand Planting



\* Seedlings should be planted with plug 1/2-1" exposed above ground.

## Site Considerations

Planting depth should be adjusted based on drainage, slope, soil texture, and site prep.



# Seedling Care and Planting Guidelines



## The Right Tree For The Right Site

### Loblolly Pine *Pinus taeda*

- Piedmont: uneroded soils with deep surface and crumbly (friable) subsoil
- Coastal Plain: Soils with poor surface drainage and clay layer within 20" of surface
- Outperforms pines on sites with poor drainage and clay layer within 20" of surface

### Longleaf Pine *Pinus palustris*

- Performs best on moderately to well-drained sandy soils that are acidic and low in organic matter
- Outperforms other pines on excessively drained sites

### Shortleaf Pine *Pinus echinata*

- Fine sandy loams, or silt loams, friable subsoil, and good internal drainage (dry uplands) and elevations above 1000 ft to 4000 ft
- Plant on sites too warm, dry for eastern white pine
- Does not grow well in Southern Coastal Plain

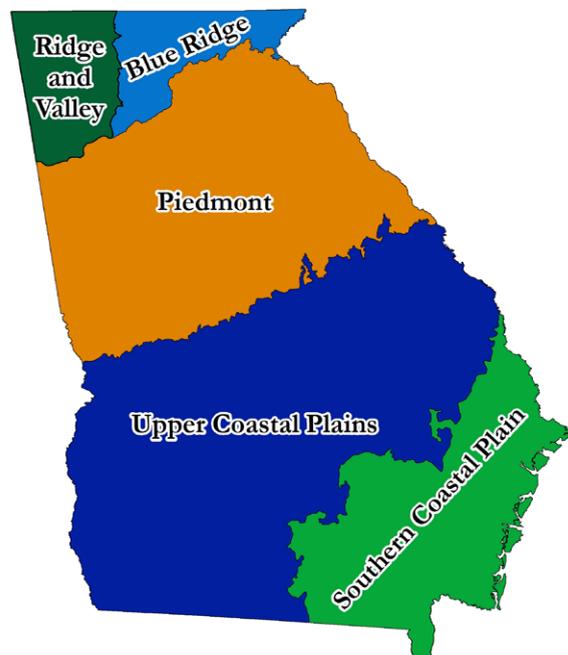
### Slash Pine *Pinus elliottii*

- Sandy type soils in the Coastal Plain where depth to a clay layer is greater than 20" from surface
- Can outperform loblolly on poorly drained soils without a clay layer within 40" and low inputs

### Eastern White Pine *Pinus strobus*

- Native to the Blue Ridge
- Grows best on coarse sandy soils located on north or east-facing slopes or on stream terraces
- Grows poorly on poorly drained or heavy clay soils

## Physiographic Regions of Georgia



## Site Preparation

Site preparation is the process of getting your site ready for tree establishment and is one of the most important aspects of achieving a successful stand. The best tools to accomplish this vary on each site. The practices you choose can depend on resources, site conditions, and scheduling. More specific site recommendations are made in the following sections but **two factors that are important on any site when considering site preparation are:**

1. **Soil type:** Affects tree selection, herbicide usage, and rooting potential.
2. **Vegetative competition:** Affects available resources to trees and without control can stunt or cause mortality in stand. Grasses or hardwoods rob trees of light, moisture, and nutrients.

### Site Preparation: Old Fields & Pastures

Oldfield sites require different site preparation compared to cutover sites. **Controlling grasses** like bermudagrass, johnsongrass, bahiagrass, etc. **must** happen before planting. Multiple chemical applications may be needed along with scalping. **Scalping** is the removal of the top 2–4 inches in the planned rows. **Hardpans** can develop over time and must be broken up using **subsoiling** down to 18"+. Allow 60–90 days for adequate rainfall to settle the air pockets before planting in the rip. Longleaf seedlings should be planted to the side of the subsoil rip to ensure the bud is not buried. It is critical to scalp and subsoil along the contour.

## Site Preparation: Cutover Land

After a harvest, a cutover site will often experience heavy vegetative competition and may need some debris cleanup before planting. There are many methods available to you as a landowner and are covered in more detail below.

### Debris Cleanup

If residual debris is heavy, cleanup should occur before competition control. Different methods to reduce debris on site are often used in conjunction with one another to achieve best results. How "clean" your site should be depends on planting methods and desired outcomes. **Raking** is used to move debris into piles which are then burned. **Shearing** is used to remove stumps on site and is used when converting natural sites to planted pines. **Prescribed burning** can be used alone or in conjunction to reduce competition and increase planting ease.

### Competition Control

**Herbicides** are commonly used to control competing vegetation and result in long-term growth benefits. Read and follow all labels and choose herbicide based on species present, objectives, and resources. Herbicides are usually applied from mid-summer to fall but the label will specify.

**Drum Chopping** lays fuels down for easier burning, breaks up root mats of waxy leaved species, and reduces debris size before burning. The benefits are short lived compared to herbicide use.

Regardless of management activities used, always follow Georgia's Best Management Practices for Forestry to prevent excessive soil movement and stream sedimentation.

## Seedling Evaluation

Inspect seedlings when picking up and before planting. If seedlings show any of the below symptoms contact nursery representative before planting.

- |  |                     |
|--|---------------------|
| <ul style="list-style-type: none"> <li>• Foul smell—fermentation</li> <li>• Yellow needles</li> <li>• Trees warm</li> </ul>      | <b>Poor Quality</b> |
| <ul style="list-style-type: none"> <li>• Bark slips off easily</li> <li>• Cambium is brown</li> <li>• Mold developing</li> </ul> | <b>Will Die</b>     |

## Transporting Seedlings

- Cover with light tarp.
- Do not stack more than two bags high.
- Leave 12" of space between cover & seedlings.
- Do not park in direct sunlight.
- Unload seedlings promptly.
- Inspect/repair torn bags.

## Seedling Storage

### Ideal Storage: 33°–38°F

- Can be kept for 1–2 months.
- Containerized seedlings can be stored at 34°F for 1–2 months.

### Storage: 38°–50°F

- Bags can be kept 3–4 weeks.
- Bales with gel/slurry on roots can be kept 2–3 weeks.
- Bales with moss packing can be kept 2–3 weeks but will need watering two times/week.

### Storage: 50°–70°F

- Plant within 1–2 days.

### Special Considerations:

- Bags should not be stacked > 2 deep unless spacers are used.
- With no cold storage, keep seedlings under shelter in shade and away from wind.
- Bareroot longleaf must be planted by three days after lifted from nursery.