

# Why Longleaf?

## Ecology

Native species: Well-managed longleaf pine forests provide quality wildlife habitats and promote a diverse ecosystem.

Rarity: Over the past two centuries, longleaf pine forests have declined from one of the largest forest types in North America to one of the most rare.

Site Adaptations: Inhabits a variety of sites, from excessively drained sands to poorly drained clays.

Aesthetics: Mature, park-like stands are visually appealing.

## Economics

Timber Products: Produces straight, dense, rot resistant wood, and the highest percentage of poles of all southern pines.

Non-timber: Longleaf pine straw (needles) typically commands a price premium over other southern pines. Likewise, entrepreneurs have discovered unique markets for longleaf pine, from mitigation banks to carbon storage credits. Also, because the management of longleaf pine usually creates the habitat of desired game species (such as bobwhite quail), hunting leases can be positively impacted.

Investment Security: Insurance against catastrophic loss. A diversity of both timber and nontimber products adds protection against market volatility. Likewise, longleaf inherently reduces the risk of catastrophic loss due to insects, disease, drought, fire and windthrow.

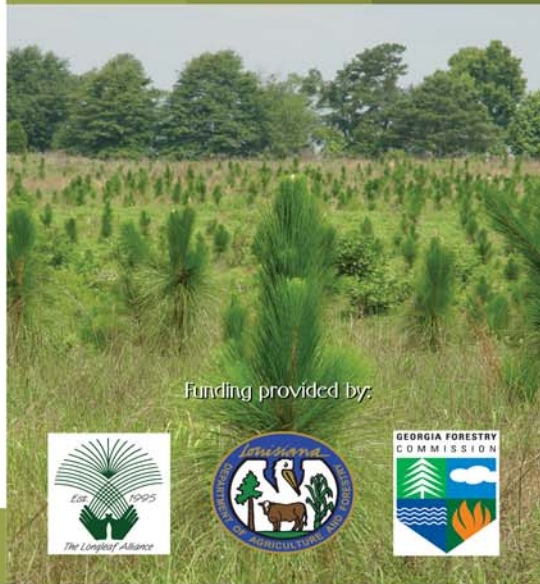
Common Sense: Experience and intuition suggest that natural forests, like longleaf, are worth more in the market than the value of the bare land plus the value of the timber alone.

For more information about longleaf pine and the Longleaf Alliance, or to join the Alliance, please contact us at:

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# Keys to Successfully Planting & Establishing Longleaf Pine

## Container vs. Bareroot Longleaf

### Containerized Seedlings

#### Pros

- Higher survival than bareroot (20% higher on average)
- Lower cost per *surviving* seedling
- Easier to hand plant (thus less of a need to reduce logging slash on cutover sites)
- Store better and for longer periods



Photo credit: Dean Greenwald

Many landowners have made the switch to planting container-grown longleaf.

- Have a wider planting window
- Greater availability in most areas

#### Cons

- Greater cost per seedling
- Not tolerant of deep planting

### Bareroot Seedlings

#### Pros

- Lower cost per *purchased* seedling
- Some tree planters are more familiar with planting
- Slightly more tolerant to deeper planting (i.e., traditional machine planting methods)
- Better root structure if properly planted



Photo credit: Stephen Hudson

Bareroot longleaf seedlings still serve as a viable option for some landowners.

#### Cons

- Typically have lower survival (20% lower on average)
- More restrictive planting window
- More difficult hand plant
- Shorter storage time
- Need refrigerated storage

## Calendar of Treatments

February - April, prior to planting

- Pre-order seedlings
- Apply chemical site preparation (as required)

June - September, prior to planting (as required)

- Prescribed burn site preparation treatment on cutover sites
- Scalp and rip soil in agricultural fields and pastures

October - January

- Plant seedlings as soon as site has adequate soil moisture.

April - May, post planting (as required)

- Apply herbaceous release (in April before weeds emerge or in May after weeds emerge)

One summer post planting (as required)

- Interplant areas with excessive seedling mortality

November - March, post planting

- Conduct a prescribed burn if >20% of seedlings are infected with brown-spot needle blight

## Myths about Longleaf

- Successful planting is difficult or uncommon.
- Longleaf grows slower than other pine species.
  - It is economically inferior.
  - The wildlife habitat is poor due to the scarcity of oak trees.
- Endangered species restrictions are likely.

## Facts about Longleaf

- Good seedlings, proper planting techniques, and increased knowledge results in high survival rates.
- Proper site prep reduces both seedling mortality and time in the grass stage while later growth can be comparable to other southern pines.
- High quality products, excellent hunting, and good markets provide economic incentives.
- Fire-maintained longleaf forests provide ideal habitats for many game and non-game species.
- Endangered species are usually confined to large public lands.

# 1) Determine Your Starting Point

## General Site Selection

All sites except those with soils that have a pH > 6.5 and sites with seasonal standing water.

## Seed Source

It is best to plant seedlings grown from a local seed source.

## Agricultural Fields & Pastures

Trees are more difficult to establish on agricultural fields and pastures than on cutover forest land. This is due to competition from pasture grasses and agriculture weeds, root feeding grubs, and root diseases.



Photo Credits: Mark Heimds

## Cutover Forest Land

It is generally easier to regenerate longleaf pine on cutover sites than on agricultural sites. Including Oust® in the chemical site preparation may help control first year herbaceous competition on cutover sites.

### Warning:

High residual fertility on agricultural sites can cause pitch canker. Additionally, sites with chicken litter residue may be lethal to longleaf pine.

# 3) Planting

Seedling planting depth greatly influences survival and growth. Adequate soil moisture is also required, which normally translates to planting in the winter months. Likewise, if you plan on hiring someone to plant your longleaf pine, make sure that they have had (successful) experience planting the species. Don't be afraid to ask your planting contractor specific questions.

## Containerized Seedling Dos

- DO focus on anticipated position/depth of the terminal bud 6 months to 1 year post planting. Tell tree planters that you "want to see the plug", i.e., slightly exposed on cutover sites and 1.5" exposed on scalped sites.
- Do plant longleaf pine plugs in a vertical position.



## Containerized Seedling Don'ts

- DON'T plant directly in a rip or subsoil furrow. Instead plant a few inches to the side of the rip.
- DON'T plant in unprepared areas of pasture grass. Pasture grasses are extreme competitors and should be treated before planting.

# 2) Preparing the Site

## Agricultural Fields & Pastures

Regeneration of longleaf pine on agricultural lands and pastures has proven to be a particularly challenging endeavor. Weed species encountered on agricultural sites are often more aggressive than on cutover sites. Also, planting failures are common in established bermuda grass, bahai grass, and fescue grass pastures that have not received adequate site preparation.

## Steps

1) Test the soil - If the soil pH exceeds 6.5, you may encounter increased risk of planting failures. Basic soils (>7.0 pH) should be avoided.

2) Control pasture grasses- Broadcast spray pasture grasses in the late summer prior to planting. Potential treatment for fescue or bahai grass is 3 quarts of glyphosate (41% Active Ingredient), while bermuda grass can be treated with 64 oz of Chopper®/acre, or, apply a herbicide and rate recommended by a licensed herbicide contractor.

3) Scalping and ripping the soil- Scalping is a mechanical process whereby the soil is peeled back in a wide (30-36"), shallow (3-5") furrow while ripping will fracture any hardpan (plowpan) that past activities have created. Scalping and ripping should be done well in advance of planting to allow the soil to settle.



Photo Credits: Dean Gjerstad

Scalping along the contour of the land reduces erosion and is a successful treatment to prepare agricultural fields and pastures for planting longleaf pine.

## Cutover Forest Land

Areas that have been burned periodically may have low weed pressure and may not require intensive site preparation and herbaceous release. In general, apply a chemical site prep in late spring followed by a prescribed, fuel-reduction burn in the early fall before planting.

### Warning:

• Oust® is a root inhibitor. Newly planted longleaf pine seedlings should have > 2" of new root growth to tolerate this herbicide. Dig up a few seedlings prior to spraying to ensure root growth has occurred.

• If soil is between 6.0-6.5 pH then do not apply Oust® at more than 1 oz per acre. If greater than 6.5 pH, avoid Oust® altogether.

• Avoid the following: Escort® (at any rate), Arsenal/Oust® tankmix before May, Atrazine/Oust® tankmixes and surfactants with soil active herbicides.

### Remember:

Herbicides should be selected based on: soil texture, application timing, vegetation to be controlled, and vegetation to be retained. Grasses, legumes, and other species can be retained or eliminated based upon the selected herbicide.

# 4) Herbaceous Release

It may be necessary to follow planting with herbicides in the spring to control herbaceous competition. This application may be band sprayed over the top of the seedlings. For example, if you have 12 foot rows, you would spray a 5 foot band directly over the seedling row. There are many reasons why broadcast spraying is not necessary: 1) may release other competitors; 2) degrades wildlife cover; 3) can increase insect (cinch bugs) damage on longleaf by removing other sources of food; and 4) more expensive.

## Options for Herbaceous Release:

1) Mid March to Early April (before emergence of broadleaf weeds)

Choose one option:

A) Oustar® 11-13 oz/acre or B) Oust® 2 oz/acre

or

2) On productive agricultural sites, the mid-March-April treatment will eliminate broadleaf weeds but may release aggressive grasses such as Texas panicum or crabgrass. In this situation, it is best to follow the initial application with a second application of 4-5 oz/acre of Arsenal® after May 1st.

or

3) If the March-April treatment was missed altogether, consider applying an Arsenal® 4-5 oz / Oust® 2 oz tank mix after May 1st.



Left: When hand-planting containerized longleaf pine, it is best to keep the plug slightly exposed.



Photo Credits: Mark Heimds

Photo Credits: Dean Gjerstad

Right: Machine-planting (or using a planting shovel) ensures success when planting bareroot longleaf pine.