



# TEXAS A&M FOREST SERVICE

## Longleaf Pine: Overview of Planting

Prior to European settlement, much of the East Texas uplands were dominated by longleaf pine (*Pinus palustris*) forests. Forest fires that burned every two to seven years or so, were caused by lightning and Native Americans, who set the woods on fire to clear underbrush that hindered their hunting abilities. Longleaf pine is the most shade intolerant of the southern yellow pines, so its survival was greatly enhanced by these fires.

Longleaf pine is greatly valued for forest products such as poles, lumber, and pine straw as well as the additional benefits of increased disease and fire resistance. Great wildlife and aesthetic value is often associated with longleaf forests with an active prescribed burn program.

Longleaf forests can be managed for timber, recreation, aesthetics, wildlife and water quality all on the same tract at the same time. Landowner objectives and site characteristics will influence how often and to what extent the site is thinned, burned, or influenced by other treatments.



### Site Selection:

The better locations for growing longleaf pine are moderately well-drained to well-drained sandy and sandy loam sites located in the southern half of East Texas. Lower, wet-

ter sites with more poorly drained soil types may require more treatments to achieve successful longleaf regeneration. Since this habitat is a fire dependent ecosystem, the right sites to plant will be areas that can be treated with prescribed fire while not negatively impacting neighboring communities.

### Site Preparation:

Longleaf pine requires a fairly clean site without a lot of competing vegetation to get established. Site preparation can be accomplished either mechanically or with herbicides or in some cases a combination of both. In most cases, site preparation treatments should be followed by a prescribed burn to remove as much debris as possible.

Mechanical site preparation consists of using heavy equipment (predominately large dozers and in some cases large farm tractors) to clean up (harvested site) or cultivate (harvested site or open land) the areas designated for tree planting. Common options include shear-only, shear & rake, or bedding & ripping. Keep in mind that several months of rainfall are needed for beds to settle before planting.

Site preparation herbicide sprays are also conducted before planting and will control most competing species and prepare a site for burning and/or planting. Sprays are generally done in late summer or early fall. Adding a herbaceous weed control herbicide to the spray mixture in the fall can often reduce or eliminate the need for an additional herbaceous weed control spray after planting.

**Pastureland Site Preparation:** Planted trees cannot compete with established grasses in open field settings. This is especially true for Bermuda grass pasture. The fields will need to be broadcast treated with herbicides prior to the tree planting season and can be burned following the application once the herbicide has taken effect. If marginal soil conditions are present, additional mechanical tillage treatments such as ripping and/or bedding may be need-

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ed to facilitate survival and growth. Scalping is another mechanical treatment which may be used to clear thick pasture grass in strips prior to planting. Benefits include easier planting, reduced insect damage and reduced grass competition; however, scalping must be done along the contour to reduce soil erosion.

## Tree planting:

Seedlings are available in either a bare root form or a containerized plug that has a small diameter of soil surrounding the roots of the seedling. Containerized seedlings generally offer better survival and initial growth along with the additional benefit of an earlier and longer tree planting season. This will greatly improve the chances of a successful and well-established stand of timber. Once planted, the seedlings will remain in a grass stage while a sufficient root system is being established. This grass stage can last from a few months to five years depending on the amount of plant competition for water and sunlight.

A common planting spacing for containerized longleaf pine seedlings is 8'x10' (545 trees per acre). Seedlings are typically planted by hand, and it is important that planting crews are educated in the planting techniques specific to longleaf pine. With containerized seedlings, you will want to make sure the top of the plug is planted 1/4-1/2 inch above ground level and never below ground.

## Timing of Establishment Treatments (as needed):

September-October	=	Herbicide Site Preparation
May-December	=	Mechanical Site Preparation
July-December	=	Burn Site Preparation
October-December	=	Burn Herbicide-Treated Site
November-February	=	Plant Container Seedlings
March-April	=	Spring Herbicide Treatment

## Maintenance:

After planting, it is important to monitor the seedlings and their competing vegetation. Use an approved woody

herbicide treatment (only after their second growing season) in place of a prescribed fire if the tract has a lot of hardwood competition. Tracts without hardwoods should be started on a cool season prescribed burn program after their second growing season. Cool season burns should be completed while trees are dormant usually during January or February. Periodic prescribed burns help control competing vegetation and also lead to the park-like appearance for this forest type. This means establishing a prescribed burn program on a two to three year rotation. An additional herbicide treatment can be applied in later years if the stand maintains a large amount of hardwood competition. Once longleaf reach about age 10, proper maintenance will include additional treatments. For more information, view *Longleaf Pine: Intermediate Stand Management*.

## What is the Key to Establishing and Maintaining a Longleaf Pine Forest?

Longleaf pines are the most shade intolerant of the southern pines; therefore, it is absolutely necessary to control competition from the seedling grass stage on to maturity. In the past, naturally occurring fires every two to seven years kept stands free of hardwoods and helped maintain that open park-like appearance. Therefore if longleaf pine is your tree of choice, prescribed fire is absolutely necessary in establishing and maintaining a healthy forest. It can be used before planting for debris removal (either as a stand-alone site preparation tool or following mechanical or chemical site preparation); after planting while the trees are still in the grass stage to help control brown spot needle blight; and, is required after establishment to maintain health and control competing vegetation. Since using prescribed fire does carry risks and requires careful planning, you will want to work with your professional resource manager to assist you in the application of this necessary management tool. You can handle the application of prescribed burning on your property or Certified Prescribed Burning Vendors are available to assist you.

