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"A pamphlet to help answer planting questions"

Brought to you by:

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ACF CF RF LA GRI

Inside this issue:

Revised 07/18/18

FREQUENTLY ASKED QUESTIONS ABOUT REPLANTING

PURPOSE

The purpose of this pamphlet is to answer most general questions landowner have when they are considering planting or replanting a stand of timber. There are many terms used within the industry to describe things like site preparation practices, tree types, as well as cost share programs for which the individual landowner may not be familiar. Hopefully within this brochure we can answer the most frequently asked questions.

PLANTING

WHAT SHOULD I PLANT?

The Average

The most commonly planted species across the south is bare-root, second generation loblolly pine planted at 622 (7x10) trees per acre. This particular set up gives what most landowners feel is the optimum situation from a cost/benefit stand point. In our opinion, landowners should plant containerized, second generation loblolly seedlings. We feel that these seedlings overcome most planting and mortality problems associated with bareroot seedlings, and with good forestry thinning practices, will perform at a level close to some of the more advanced genetic seedlings. Now we have already given you a few new terms with which you are not familiar so I will take this opportunity to go over a few of these.

Bare-root versus Container

This refers to how the seedling is grown & shipped. ***Bare-root seedlings*** are just that; the seedlings are grown in the soil and are lifted by the nursery and shipped without any soil so that roots are "bare" (roots are gel coated to prevent drying). ***Bare-root Low-Density seedlings*** are grown at a lower density at the nursery and have a larger, more developed shoot and root system. ***Containerized seedlings*** are grown in Styrofoam containers and when lifted by the nursery all the fine feeder roots and the soil are formed into a uniform shape and shipped with the seedling. Container seedlings are 25% more expensive than bare-root seedlings but they have the advantages of immediate early growth, longer planting season, and higher survival rates. These higher survival rates allow the landowner to plant less trees per acre (500 TPA) to recoup some of the seedling cost, and are advantageous on hard to regenerate sites.

Genetic Improvement

Simply stated, a genetically improved tree comes from a strict selection process where offspring produced by the tree show superior performance for a specific trait or a combination of traits (such as growth, form or disease resistance). Generation 1.0 seedlings come from the first generation of orchard parents which were selected from highly performing trees growing in the wild. Generation 2.0 seedlings come from the second generation of orchard parents which were selected from highly performing trees growing in the first generation orchard. A general rule of thumb has been that each generation of improved seedlings has a 10% gain in volume over previous generations. All the above are examples of open pollination where only the mother tree is known. ***Mass control pollinated*** (MCP) seedlings are seedlings where both the father and mother tree are known through a very controlled pollination process. MCP seedlings again are more expensive but when combining the best second generation parents can produce more than a 50 percent volume gain. The highest level of genetic improvement would be the new ***varietal seedlings***. These are essentially cloned trees from one mother tree through the expensive somatic embryogenesis process. Varietal seedlings typically cost 10 times more than bareroot seedlings and 4 times what MCP seedlings cost.

Planting Method - Hand vs Machine.

The two methods of planting are machine and hand planting. We recommend machine planting by tractor on clean old fields & pastures. On slightly grown up cutover sites we recommend machine planting by dozer. On recent cutover sites hand planting will be sufficient. Machine planting is slightly more expensive than hand planting but results in a more uniformly spaced planting job with more deeply rooted trees.

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PLANTING

Which Species?

Loblolly – Loblolly has been the most planted species in the south. This easily grown, fast growing member of the yellow pine group is an aggressive invader of old fields. This is the species that commercial forestry singled out for genetic improvement programs and plantations. We recommend this species for landowners who want a more passive timber investment where less management activity is required.

Advantages
- Easy to regenerate across a wide number of sites,
- Cheaper to regenerate
- Fast growing
- Advanced genetics available

Disadvantages
- Poorer wood quality due to quick growth
- Susceptible to wildfire damage when young
- Can shade out native vegetation
- More prone to wind breakage, fusiform rust and pine beetles than longleaf.

Longleaf – Within the past few years there has been a renewed interest in longleaf pine as ample governmental money in the form of cost share programs have began promoting the species. Before the advent of containerized seedling technology this species proved difficult to artificially regenerate. With regeneration difficulties being mitigated, many people are returning to the tree which once dominated the southern landscape. The advantages of longleaf include:
- Growing of higher valued products like pine poles which bring 35-40% more than sawtimber.
- Reduce risk of loss to natural causes (i.e. pine beetles, disease, and wind throw from hurricanes)
- Aesthetics as frequently burned forest take on a park-like appearance
- Pine straw harvesting as a means of income between harvest
- Wildlife – well managed stands provide better quality habitat for wildlife than loblolly stands.

The disadvantages are:
- This species is more expensive to regenerate and requires more active management through the use of regular prescribed burns.
- Slower growth rates as compared to loblolly pine make for 5 to 10 year longer growing rotations.

We don't recommend planting longleaf if:
- You are planting on old agricultural fields. These are very tough sites to establish believe it or not.
- You aren't committed to more frequent management activities. This is not the species for you if you want a set it and forget it plantation.

Hardwoods – With hardwoods there are many species available. Seedlings can be found in both bare root and containerized types. What an individual plants will be determined by the objectives of the landowner and the proposed site. The most commonly planted hardwood in south Mississippi would be the Cherrybark Oak. This member of the Red Oak family is highly prized for its fast growth and valuable lumber. Each species has its advantages and disadvantages as well as its preferred site but here is a short, but not comprehensive list of commonly planted hardwoods.

Objective	***Species***
Lumber	Cypress, Yellow Poplar, Sweet Gum, Green Ash
Lumber & Wildlife	Cherrybark Oak, Water Oak, Laurel Oak, White Oak, Swamp Chestnut Oak, Overcup Oak, Shumard Oak, Willow Oak,
Wildlife	Live Oak, Sawtooth Oak, Persimmon, Mayhaw, Crab apple.

Final Planting Recommendations

Species	Genetics	Type	Trees/ac	Spacing
Loblolly	2nd Generation	Bareroot	622 TPA	7x10
Loblolly Extra	2nd Generation	Bareroot	726 TPA	6x10
Loblolly	2nd Generation	Container	495 TPA	8x11
Longleaf	1st Generation	Container	495 TPA	8x11
Hardwoods	—-	Bareroot	454 TPA	8x12
Hardwoods	——	Container	403 TPA	9x12

SITE preparation

Why do I have to prepare the site for planting?

Purpose: The purpose of site preparation is to:
- ⇒ Reduce the competition of unwanted vegetation in order to increase the survival and growth rate of the desired trees.
- ⇒ Remove slash and logging debris if the site has been harvested, and
- ⇒ To prepare or modify the soil

Ultimately, we want to provide better light, nutrients and moisture to make conditions favorable for germination, survival and growth. Pines do not tolerate growth completion well early in it life so it is necessary to control all completion.

Why can't I just plant without site prep and save the money, or Won't the site regenerate on its own?

There are several problems with this method.

- ⇒ We have aggressive invasive species now that were non-existent 20 years ago. Chinese Privet, Yaupon, and Chinese Tallow can quickly invade and take over a site.
- ⇒ Hardwoods established before the harvest often resprout, and with an established root system, can easily out compete young pine seedlings, which have to develop a new root system.

I just harvested so can I plant while the site is clean?

If the site had a majority of pine prior to harvest and the harvest was not completed before June 15th, we recommend delaying planting for one planting season. This is to reduce seedling damage to the pales weevil infestation as well as making any site preparation spraying more effective. If you still would like to plant we recommend having seedlings dipped in an approved insecticide like Pounce®.

TYPES OF SITE PREPARATION

1. Prescribed Burning

The purpose is to control undesirable vegetation, prepare sites for planting or seeding, reduce fire hazard, improve wildlife habitat, and improve forage production and quality. It is a complex tool and should be used by only those who are trained and experienced in its use. The practice is falling out of favor with land managers due to increased cost, difficulty in acquiring insurance, and exposure to litigation (fire escape & smoke management). Mississippi policies and guidelines:

- ⇒ Prescribed Burning must be done in compliance with the Mississippi Prescribed Burning Act.
- ⇒ A Mississippi Certified Prescribed Burner is the only person authorized to burn under this program.
- ⇒ A prescribed burning plan must be completed by a certified burner prior to the burn.
- ⇒ A burning permit issued by the Mississippi Forestry Commission must be obtained prior to the burn.

2. Chemical (recommended for most sites)

The primary objective of chemical site preparation is to reduce or control sprouting of hardwoods or herbaceous competition. Numerous studies suggest that chemical site preparation has a higher return on investment of any other site preparation treatment. Herbicides in site preparation are usually applied by aerial application using helicopters due to reduced cost and speed of application. The added advantage of this method is that there is very little soil disturbance so site productivity is not affected. The species present on the site will dictate which herbicides are used. Most forestry herbicides are very safe and have been shown to have very low toxicity levels for fish and animals.

3. Mechanical (only recommended for rough sites with excess vegetation)

Shearing and Piling

Shearing is used to fell vegetation where the vegetation is generally large (6 inches or more dbh). Shearing is done with shearing blades that are either angled or V-shaped. Blades with serrated edges have the best cutting action. The blade should be kept out of the soil to minimize soil disturbance.

Root Raking

Root raking usually follows shearing and is used to push the felled vegetation and other debris into windrows. Windrows should be placed on the contour intervals of 100 to 300 feet depending on the slope and erodibility of the soil.

Drum Chopping

Copping is used where the vegetation is generally small (6 inces or less in dbh). Chopping is accomplished by the use of a heavy track vehicle pulling one or two large metal cylinders (drums) with longitudinal cutting blades. One or two drums can be pulled behind a dozer to knock down, run over, & break down trees and other vegetation. Most material is concentrated near the soil surface, facilitating burning and decomposition of organic matter. Chopping is a cheaper alternative to heavier mechanical operations such as shearing and raking. A prescribed burn at least 60 days following this operation is typically conducted.

Bedding (recommended for wet sites)

Bedding is usually prescribed on somewhat to very poorly drained soils to raise the root zone above the perched water table and increase site plant-ability. Bedding improves soil tilth in the bed and also improves near-term nutrient availability by churning organic matter and topsoil in the bed. We have found it highly effective at promoting rapid early growth in longleaf pine. Longleaf pine don't initiate height growth until it reaches a 1" root collar diameter. By promoting easy early root growth longleaf pine grow out of grass stage sooner.

How can I offset replanting cost?

Landowners are often unaware of government cost share programs or tax credits which can significantly reduce the out of pocket cost of site preparation and replanting. The table below contains general information on the most poplar alternatives for the area.

Forestr

Program	Initials	Agency	Purpose	Requirements	Contract Length	Funding Lim	Payments	Landowners Obligations	Forestpro Note on local use
Conservation Reserve Program	CRP	Farm Service Agency	For conversion of marginal cropland to long-term conservation cover, either grass or trees.	Cropland used 4 out of 6 years prior to passage of farm bill	10-15yrs		50%	Develop and implement forest management plan for cropland conversion; assist with cost, establishment, and mainenance of conservation practices.	Older program used to plant loblolly on field sites. Now being used to establish longleaf locally.
Forest Resource Development Program	**FRDP**	M S Forestry Comm	To encourage reforestation & management fo forest resources in M S	>10 acres; maintain for 10 yrs; NIPF land only	1-10 yrs	$7000/yr	50-75%	Landowner agrees to protect from fire and grazing and manage for 10 years. Assist with installation cost.	Good for cost share of loblolly plantings. Limited funding.
Conservation Stewardship Program	**CSP**	Natural Resource Conservation Service	Encourages NIPF's to undertake, improve, maintain, and manage existing conservation	M eet at least 1 resource concern. (scored by local agency)	5 yrs	<$200,000 over 5 years	Up to 75%	Develop and implement forest management plan that includes installing or maintaining conservation practices.	Locally used for planting longleaf pine.
Enviromental Quality Incentives Program	EQIP	Natural Resource Conservation Service	Promotes agricultural production, forest management and enviromental quality as compatible goals.	Nonindustrial privagte forest land (NIPF)	1-10yrs	<$300,000 over 6 years	Up to 75%	Develop and implement forest management plan; assist with cost and estblishment of conservation practices	
Wetland Reserve Program	WRP	Natural Resource Conservation Service	Assistance to eligible landowners to restore, protect, and enhance wetlands in exchange for retiring marginal	Floodplain Forest; Owned > 7 yrs; Restorable and suitable for wildlife.	Permanent or 30 year easements		Permanent 100% 30 year up to 75%and 30 yr contract payment.	Develop and implement wetland restoration plan that includes management of forestland; asssit with restoration cost.	M ostly used in the Delta, most local areas don't apply
Wildlife Habitat Incentives Program	WHIP	Natural Resource Conservation Service	To help establish and improve fish and wildlife habitat	Nonindustrial privagte forest land	1-10 yrs		Up to 75%	Develop and implement forest management plan that includes the development of wildlife habitat; assist with installation cost.	Locally used for planting longleaf pine, establishing beneficial shrubs, or perscribed silivicultural burning

Bold - Indicates most popular programs.

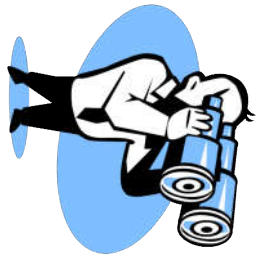
Forestry Tax Credits

Program	Initials	Agency	Purpose	Requirements	Contract Length	Funding Lim	Payments	Landowners Obligations	Forestpro Note on local use
Mississippi Reforetation Tax Credit	M RTC	M iss Tax Commission	Promotes reforestation on private, nonindustrial lands.	Plan prepared by register forester.	None	$75,000/lifeti me	50%	Follow reforestation plan and have Form 80-315 filled out by forester	Best alternative for M ississippi income tax payers.
Federal Reforestation Tax Cedit & Amortization		Interal Revenue Service	Promotes reforestation on private, nonindustrial lands.		None	$10,000/yr	10%tax credit; 90% ammortazation over 7 yrs	Keep all cost receipts and fill out approaiate tax forms.	remaining expenses can be amortized over a 7-year period.

Important Notes:

⇒ Apply for cost share as soon as you decide to plant - funds are limited.

⇒ Generally, you have to choose to use either cost share or tax credits. Only landowners with an adjusted gross income less than the federal income tax credit may do both.



We recommend

1. If you pay Mississippi Income Taxes and you get 50% or less cost share funding approval, go the State & Federal Tax credits.
2. If you don't pay Mississippi Income Taxes or you get greater than 50% cost share funding approval, go with cost share.

How to pay for your new forest.