

Pine Silviculture

Site Preparation and Planting Longleaf Pine

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Natural Regeneration of Longleaf

Uneven aged Stands

- **Group selection system:**
 - Allows periodic harvests while maintaining continuous forest cover.
 - Groups of trees of various sizes are harvested at fixed intervals, every 10 to 25 years (cutting cycle), to create small openings which may be regenerated by natural seeding or planting.

Even Aged Stands

- **Shelter wood system:**
 - Maximizes seed production and provides sufficient needle litter to fuel fires hot enough to inhibit hardwoods and to prepare a seed bed.
- **Prep Cut-** thinning to stimulate seed production
- **Seed Cut-** for good seed year, burn before seed fall
- **Removal Cut-** after adequate seedlings established

Site Preparation Tools

- Fire
- Machinery
- Herbicides
- Hand Clearing
- Grazing



Drum Chopper

Shearing



“Stinger”



Root Rake



Piling – Most common



Windrows

- Once common
- Provides good planting access
- Relatively fast
- Topsoil movement
- Soil compaction
- Windrow on contour, reduce erosion
- Burn in summer prior to planting
- Loss of growing space



UGA4799038

Burn windrows in summer



UGA4798068

Pine plantation following windrowing



Savannah Plow



Flatwoods bedding following Shear-Pile

- One or two pass bedding
- Done in summer months to allow beds to settle prior to planting



Site Preparation Burning

- Prescribed fire plan, plan ahead!

- Burning permit needed

- Parameters

- Wind
- Temperature
- Humidity
- Moisture
- Fuels

- Smoke management

- Temperature inversions
- Mixing height
- Fuel conditions

- Certified Burner Program

Good mixing height



1-Pass Disking and Ripping



Average Costs of Common Treatments¹

• Single Chop	\$114
• Chop and Bed	\$114
• All other Single Pass	\$119
• Shear-Rake and Pile	\$171
• Shear-Rake, Pile and Bed	\$189
• Bedding	\$174
• All other Multi-Pass	\$191
• All Types of Mechanical	\$157

¹Barlow, et al. 2009, Forest Landowner Vol. 68, No. 5

Herbicide Site Preparation

“Get to the root of the problem”

- Manage brush and herbaceous weeds
- Options **with and without burning**
- Hand planting is typical
- Spring, summer, and fall treatment options
- Combined with mechanical treatments on poorly drained sites
- **Costs \$32-66 per acre¹**



Before



After

¹Barlow et al. 2009. Forest Landowner

Site Prep Herbicides- Most Common

Common Name	Trade Name	Manufacturer
Glyphosate	Accord [®] XRT II, Accord [®] Conc. Razor [®] Pro, Foresters' [®]	Dow AgroSciences NuFarm
Hexazinone	Velpar [®] ULW, Velpar [®] L Pronone [®]	DuPont ProServe
Imazapyr	Chopper [®] Gen2, Arsenal [®] AC Polaris [®] AC	BASF NuFarm
Triclopyr	Garlon [®] 4 Ultra Tahoe [®] 4E	Dow AgroSciences NuFarm
Metsulfuron	Escort [®] XP	DuPont

Most Common Site Prep Treatments

- Spring Site Prep with Velpar[®]
- Upland Foliar Sprays
- Flatwoods Foliar Sprays



Herbicide Site Preparation

Spring treatment with Velpar® (hexazinone)

- Ideal for *sandy soils, mostly oaks*
- Soil active herbicide, root uptake
- Requires rainfall to activate
- Enhanced growth with spring timing



Aerial



Ground

Herbicide Site Preparation

Foliar sprays in summer and early fall

- ***Upland sites:***

Broad species spectrum

40 oz **Chopper[®] Gen 2**

+ 3 qts **Accord[®] XRT II**

- ***Flatwoods:***

Gallberry, Saw palmetto

32 oz **Chopper[®] Gen 2**

+ 3 qts **Garlon[®] 4 Ultra**



Aerial

Ground



UGA0016294



Special Situations in Site Prep

- **Blackberry Control:**

- 32 oz **Garlon[®]** 4 or
- 1 oz **Escort[®]**



Sand Blackberry

- **Pine Control: Add**

- 2-3 qts **Krenite[®]** or
- 2qts **Milestone[®]**



5 qts **Accord[®]** + 3 qts **Krenite[®]**

Successful Longleaf Planting

- Good soil moisture
- Good site prep
- Quality planting stock
- Careful handling of seedlings
- Proper planting
- Managing competition

Brian Cobble, DOF -machine planting



Forest Stewardship Program

Quality longleaf seedlings

- ✓ Root collar diameter
0.4-0.6 inch
- ✓ Stout tap root greater than
6 inches
- ✓ At least 6 lateral roots
greater than 6 inches
- ✓ Winter bud with scales
- ✓ Abundant large needles,
free of brown spot
- ✓ Undercut well before
lifting
- ✓ Seed source from same
region as planting



Brown Spot



Herbaceous Weed Control

in newly established longleaf pine plantations



- Widely adopted in the 1980's
- Longleaf seedlings come out of grass stage faster
- Spring application
(April-May)
- **6-foot wide band** over rows
- Broadcast where rows are not present or have vines, tall weeds, difficult access

Herbaceous Weed Control

Longleaf Pine

- Apply mid-April to mid-May
- **Do not add surfactant**
- 2 Oust[®] XP + 24 oz Velpar[®] L
- 2 oz Oust[®] + 10 oz Velpar[®] DF
- 12 oz Oustar[®]

Pasture Conversion

- 4 oz Arsenal[®] + 2 oz Oust[®] XP
applied mid-may
- *Bermuda*- Site prep first!

Check for new roots



Sources of Additional Information

- **Forest Stewardship Program, School of Forest Resources, University of Florida**

http://www.sfrc.ufl.edu/Extension/florida_forestry_information/index.htm

- **Southern Regional Extension Forestry**

<http://www.sref.info/>

- **Longleaf Alliance**

<http://longleafalliance.org>

Extension Forestry
Southern Regional



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