



(photo by the Longleaf Alliance)

Definition

Establishing woody plants by planting seedlings, cuttings, direct seeding or natural regeneration.

Purpose

To establish woody plants for:

- forest products,
- long-term erosion control,
- improvement of water quality,
- waste treatment,
- reduction of air pollution,
- sequestration of carbon,
- energy conservation,
- wildlife habitat,
- aesthetic enhancement.

Where to Use

Where woody plants would naturally exist and can be effectively established. Examples would be: woodland, wildlife land, wetlands, coastal areas, rangeland, pastureland, agricultural land, wetlands, suburban and urban landscapes,

Considerations

Choosing Species to Plant

The species selected should meet one's goals and be adapted to site conditions and suitable for planned purposes. *The species chosen are indicated on the attached specification sheet.*

Quality Criteria for Planting Stock

Bareroot Pine Seedlings:

Characteristics	Longleaf	Slash & Loblolly
Minimum Stem Length ^a	> 8 in.	10 in.
Minimum Root Collar Diameter	> 3/8 in.	> 7/32 in.
Tap Root Length	7 in.	5 in.
# Lateral Roots (> 1 mm in diameter)	5+	5+
Mycorrhizae	Present	Abundant

^a – for longleaf, the criteria measured is needle length.

Avoid seedlings that have: a sour smell, yellow needles, mold, a brown cambium layer and slipping bark.

Bareroot Hardwood Seedlings:

Root Collar Diameter	1/4 to 3/8 inch
Stem Length	12 to 18 inches

Containerized, Balled or Burlapped Saplings:

	Good	Bad
Overall Form	Well Formed	Poor Form
Branches	Well spaced, strong crotches	Poorly spaced, weak crotches
Foliage	Full, good color/condition	Sparse, poor color/condition
Bark	Tight	Slipping
Trunk/Leader	Single	Multiple
Roots	Adequate space	Root bound, cut roots > 1 in dia.

Seed:

Commercially produced seed shall have greater than 85% germination and 95% purity.

Handling and Care

Seeds and seedlings should be stored at 34 to 38 °F. No seedlings should be stored more than 10 calendar days after lifting.

During transportation, handling and planting, seedlings should be kept: loosely covered, out of direct sunlight, from wind and temperatures below freezing or above 50 °F, separated from petroleum products or fumes, stacked no more than two bundles deep and provided with

adequate ventilation, moist by watering root collars twice a week unless coated with clay slurry or otherwise treated. Longleaf pine seedlings should be planted within three days of lifting from the nursery.

Site Preparation

Proper site preparation will reduce planting failures by minimizing competition during and shortly after seeding or planting. The most common forms of site preparation are: 1) prescribed burning, 2) mechanical, and 3) chemical herbicide treatment or some combination thereof. Herbicides shall be used according to labeled instructions and rates. *Site preparation instruction is provided on the attached specification sheet.*

Planting Dates

Bareroot pine seedlings should be planted December through January for best survival. Containerized, burlapped tree and stock can be planted anytime with proper handling and with adequate rainfall or irrigation after planting. Shrubs are best planted during late winter and late fall is best for evergreen shrubs. *Planting dates are provided on the attached specification sheet.*

Establishment Methods & Planting Directions

Natural Regeneration Methods:

Acceptable methods for establishment include seed tree and shelterwood methods as well as clearcutting for seed-from-the-side, seed-in-place, and seedlings-in-place regeneration methods (see NRCS, National Forestry Handbook, Exhibit FL636-4).

Planting Methods:

Seeds may be sown by air, cyclone seeder, row seeding machine or spot seeding on a properly prepared seedbed. Trees may be hand planted with dibble bars, hoedads, planting shovels or, in the case of hardwoods, power augers and post-hole diggers can also be used. Trees may also be planted by machine. An acceptable hardwood planting machine should have a coulter diameter of at least 32 inches and should create a trench four inches in width and fifteen inches in depth.

Planting Directions:

Seeds and seedlings should be planted to the proper planting depth and receive appropriate soil compaction for the species being planted.

Plantings should follow topographic contours on sloped ground. Tree and shrubs should be spaced to allow growth at normal rates and with proper form.

Bareroot and containerized seedlings should be planted vertically, with straight roots and be firmly packed. Containerized seedlings should be planted with the root plug completely covered with soil. Plant bareroot pine seedlings, except longleaf pine, with the root collar one to three inches below the soil surface. Longleaf root collars should be at the normal ground line.

Burlapped or containerized plants should be placed in holes three to five times the width of the rootball and deep enough so the top of the rootball is even with the soil surface. Remove all synthetic or treated components (i.e., wire, nylon, or treated burlap) from the rootball; otherwise, remove degradable material from the upper 1/3 of the rootball and all material surrounding the trunk. Do not cover top of rootball with soil.

The appropriate establishment methods and planting directions are provided on the attached specification sheet.

Conservation Management System

Tree and shrub establishment is used in conjunction with other conservation management practices to promote and maintain a dynamic and healthy environment.

All activities under this practice shall comply with NRCS standards and specifications, which include FL best management practices for silviculture (FL Division of Forestry, 2000).

Operation and Maintenance

Control weeds and other competition for at least two years after planting. Mowing, mulching, chemical herbicide application and prescribed burning are common treatments used to control competition during establishment and management of woody plants. *Maintenance requirements and recommendations are provided on the attached specification sheet.*

References:

For more information on these topics, please see the attached reference sheet.

Florida Division of Forestry. 2000. *Silviculture Best Management Practices*.
Longleaf Alliance.
(<http://sofserv.forestry.auburn.edu/la/>)

NRCS, Section IV, FOTG Guide:
Bedding, Code 310.
Forest site preparation, Code 490.
Tree and shrub establishment, Code 612

NRCS, FL Technical Notes:
Longleaf pine notes, Forestry FL-18.

NRCS, National Forestry Handbook, Feb. 2001,
(<http://nssc.nssc.nrcs.usda.gov/nfh/>)
Planting and care of Southern pines,
Conservation Practice Specifications,
FL612A. Part 636.5, Exhibit FL636-3.
Natural regeneration & direct seeding.
Conservation Practice Specifications,
FL612B. Part 636.5, Exhibit FL636-4.
Tree (non-pine) & shrub planting.
Conservation Practice Specifications,
FL612C. Part 636.5, Exhibit FL636-5.
Estimating tree & shrub survival in a
plantation, FL-CPA-13. Part 636.5, Exhibit
FL636-6.

Tree and Shrub Establishment – Specifications Sheet



Client: _____

Contract #: _____

Farm #: _____

Tract #: _____

Program: _____

Objective(s) of Tree or Shrub Planting (check all that apply)	
<input type="checkbox"/> Forest products	<input type="checkbox"/> Aesthetic enhancement
<input type="checkbox"/> Wildlife habitat enhancement	<input type="checkbox"/> Waste treatment
<input type="checkbox"/> Carbon Sequestration	<input type="checkbox"/> Improve air quality
<input type="checkbox"/> Improve water quality	<input type="checkbox"/> Other (specify):
<input type="checkbox"/> Reduce soil erosion from wind or water	

Site Preparation
Remove debris and control competing vegetation to allow equipment access and establishment of selected species. Additional Requirements:

Standard Row Spacing (in row x between row) & Stocking Rates ^a (Circle One)					
Spacing	Stocking Rate	Spacing	Stocking Rate	Spacing	Stocking Rate
6 ft x 10 ft =	726	8 ft x 10 ft =	544	9 ft x 12 ft =	403
8 ft x 8 ft =	680	9 ft x 9 ft =	538	10 ft x 11 ft =	396
7 ft x 10 ft =	622	8 ft x 11 ft =	495	11 ft x 11 ft =	360
6 ft x 12 ft =	605	8 ft x 12 ft =	454	12 ft x 12 ft =	302
Other (as described):					
^a – Stocking Rate (trees/acre) = 43,560 (ft ² /ac) ÷ [Between-Row Spacing (ft) x In-Row Spacing (ft)]					

PLANTING RECOMMENDATIONS				
	Stand 1^{a, b}	Stand 2^{a, b}	Stand 3^{a, b}	Stand 4^{a, b}
Field/CMU Id #'s:				
Acres:				
Species to Plant:				
Planting Stock: Seed, Burlapped, Cuttings, Bareroot or Containerized				
Planting Method: Hand or Machine Plant, Seed or N. Regeneration				
Planting Depth:				
Stocking Rate or Quantity to Plant:				
Planting Date:				
Special Planting Instructions				

^a – A stand refers to a field or fields having the same planting recommendations. For example, two fields having longleaf planted in the same way in the same year would be one stand. Refer to the Conservation Plan Map for stand locations.

^b – See the conservation plan map or FL Division of Forestry Plan for stand and planting location.

Operations and Management Prescription
Include practice requirements and treatment recommendations to ensure success for the life span of the practice.

Planner: _____ **Date:** _____

Is this practiced designed and planned according to USDA-NRCS FL Practice Code 612 standards and specifications? Yes No **Approved by:** _____ **Date:** _____

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