

# Management Options for HARDWOODS

## Under The Current Cost-Share Programs

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**T**he vast majority of tree planting performed by landowners across the state is with pine seedlings. However, the current economic downturn in the pine pulpwood market may have some landowners wondering if planting hardwoods is a viable option. Planting hardwoods on suitable hardwood sites has always been a good practice. Continued management of existing hardwood stands on hardwood sites is smart forest management.

A previous article published in the Winter 2001 issue of Alabama's TREASURED Forest magazine described practical ways to produce hardwoods using natural regeneration. You can find this and other articles on the Alabama Forestry Commission (AFC) website at: [http://forestry.state.al.us/publication/hardwoods\\_articles\\_index.htm](http://forestry.state.al.us/publication/hardwoods_articles_index.htm).

This article however focuses on artificially regenerating hardwoods on open lands or cleared lands and the many options available to increase success and reduce capital expenses. Successful hardwood plantations do not happen by accident. They require planning and a commitment of time and resources. The first three or four years are important to the success of the plantation and require more commitment than with pine plantations. For successful artificial regeneration to occur, several tasks are recommended such as: treating competing vegetation with herbicides, scalping, in-row subsoiling, prescribed burning, bush hogging, and disking. Failure to complete the needed tasks most often leads to plantation failure.



*American sycamore planted in January 1991 on a 7x10-foot spacing. Soil type is Kipling loam. Current dbh range is 4-8 inches and heights are 35-40 feet.*

### PURPOSE OF PLANTING HARDWOODS

Landowners may have a wide array of objectives and purposes for planting hardwoods. The federal and state agencies' purposes in providing cost-share programs for hardwood plantings include:

**Soil protection** - Trees provide an excellent means of protecting the soil from erosion and protecting water quality by filtering runoff.

**Timber production** - Timber production is important to our economy and provides wood products that we use everyday.

### Enhancement of the environment -

Hardwood forests enhance the environment by providing shade, beauty, food, color, and much more.

### Wildlife habitat improvement -

Many game and non-game species depend on hardwood forests for food, cover, nesting, and shelter.

### AVAILABLE COST-SHARE PROGRAMS

Currently, one state and three federal cost-share programs are available for landowners, all having different sign-up periods. The best way to stay informed is to get on the mailing list of your local Farm Service Agency (FSA) newsletter.



Dallas County Manager Tom Lang standing in front of a 20-foot tall Shumard oak. This is a 113-acre Conservation Reserve Program (CRP) field planted in Shumard oak, cherrybark oak, southern red oak, and white oak. Soil type is Kipling loam - a somewhat poorly drained Blackland Prairie soil. Trees were machine planted in December 1994 on a 10x12-foot spacing. Survival rate is 75%. Current tree heights are 10-25 feet.

The current programs participating in cost-share hardwood planting are:

- Conservation Reserve Program (CRP)
- Alabama Agricultural & Conservation Development Commission (AA&CDC)
- Environmental Quality Incentives Program (EQIP)
- Wildlife Habitat Incentives Program (WHIP)

## SPECIES SELECTION

If you are planting under a cost-share program you may use a variety of hardwood species. It is important to know your soil type before selecting the hardwood species to plant - matching hardwood species with suitable soils is crucial. Considerations such as slope position, soil texture, and soil moisture can also be key factors in determining species to plant. The publication Considerations for Forest Management On Alabama Soils provides a list of hardwood species and a corresponding site index for each species and soil type.



These plantations of green ash (left) and Nuttall oak (right) were planted in January 1995. Heights for the green ash are 20-30 feet and 10-25 feet for the Nuttall. Soil is Leeper silty clay.

## TREE SPACING

Tree spacing should vary depending on the objectives of the landowner and the species selected to plant. The spacing has a direct effect on the growth of the trees. Denser, tightly packed plantations will produce more wood volume and require less pruning; however, wider spacing promotes branching which will improve fruit production. Open field plantings for timber production should have spacing between 6 and 12 feet. The current recommendation for hardwood plantations is to plant a denser stand using spacing of 8-x-8 feet. This will result not only in a higher probability of a fully-stocked plantation and reduced maintenance, but will also produce better formed trees. Wildlife plantings should be spaced wider than 12 by 12 feet.

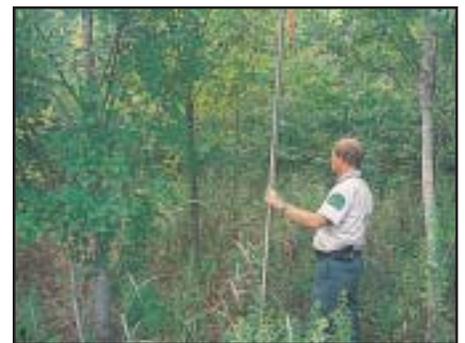
Spacing (feet)	Trees per acre
8 x 8	680
10 x 6	726
10 x 7	622
10 x 8	544
10 x 10	438
12 x 12	303

## SITE PREPARATION

The importance of a good site preparation cannot be stressed enough. For newly planted hardwood seedlings to

grow and survive, they must compete for limited soil nutrients, available ground moisture, and sunlight. The amount of site preparation needed depends on the amount of pre-existing vegetation present and soil conditions. As a general rule, remove all perennial weed competition the summer or fall before planting. This can be accomplished either mechanically or chemically. Research has demonstrated that disking, or plowing and disking, eliminates perennial weed competition, loosens the soil, and releases nutrients stored in the organic matter. The nutrients and increased soil moisture enhance seedling survival and

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Dallas County Forestry Specialist Daniel Jordan standing in a 15-acre Stewardship Incentives Program (SIP) green ash plantation. Soil type is Leeper silty clay, another poorly drained Blackland Prairie soil. Trees were machine planted in January 1995 on an 8x10-foot spacing. Survival rate is 95%. Current tree heights are 20-30 feet.

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growth during the first growing season. First year herbaceous weed control, either mechanical or chemical, will be much easier after the perennial competition has been removed.

Another site preparation treatment often used before planting hardwoods is in-row subsoiling. Subsoiling can produce more favorable hardwood root development conditions by ripping through compacted soil with a shank pulled by a tractor or dozer. Another benefit of subsoiling provides straighter rows and more even spacing.

Many of these site preparation practices are cost-sharable. However, they must be included in the approved cost-share plan prepared by the designated technician. In most cases the Alabama Forestry Commission provides technical assistance to the various cost-share programs.

## PLANTING SEASON

Planting hardwood seedlings at the proper time of the year will help guarantee a successful plantation. It is best to plant tree seedlings in late winter or early spring when the seedlings are dormant. In Alabama, this period is between December and March. Soil moisture and temperature at this time of the year are ideal for high survival and vigorous tree growth. Depending upon the weather, tree planting can be extended later in the spring if adequate soil moisture is present.

## SEEDLING QUALITY & PLANTING TECHNIQUES

The Alabama Forestry Commission's tree planting standards require a minimum of a seedling that is 18 inches tall and 3/8 inch in root collar diameter. Seedlings should be planted with the root collar slightly below ground level. The hole must be deep and wide enough so that the taproot can be placed straight down without bending and the lateral roots spread out. Plant seedlings in an upright position and press moist topsoil firmly around the roots. Do not plant in extremely dry soil. Only vigorous seedlings should be selected for planting.

Only dormant stock should be planted and it should be planted as soon as possible after it is received.

## SEEDLING CARE/HANDLING BEFORE PLANTING

Planting trees that will live starts with transportation and storage of seedlings between the nursery and planting site. Just like apples, oranges, and milk, **seedlings are perishable!** If they are mishandled during transportation and storage, **THEY WILL SPOIL AND DIE!** Follow the recommendations below to help ensure that your seedlings are at their best when planted.

For more information on seedling transportation, storage, quality, planting techniques, or standards, log on to the Commission's web page and read "Seedling Care and Reforestation" at [http://forestry.state.al.us/afc\\_library.htm](http://forestry.state.al.us/afc_library.htm).

## POST-PLANTING CARE

Young hardwood plantations must be protected from livestock grazing and over-stocked deer herd depredation. An important silvicultural treatment during the first growing season is herbaceous weed control. Herbaceous weed control will greatly increase seedling survival and improve growth.

Herbicides used for herbaceous weed control are site specific; each herbicide is best suited for a particular purpose on a given site. Factors influencing the suitability of an herbicide to the site are:

- type of vegetation to be controlled
- species of tree to be over-sprayed
- soil type
- time of year
- proximity to a stream
- age of the seedlings to over-spray
- sensitivity of surrounding areas to damage from herbicides
- cost

With all these factors to consider, it is imperative that herbicides be carefully and knowledgeably applied. It is best to always use a certified applicator (licensed according to state law). Tank mixes of different herbicides can be used if needed to control a wide range of

weeds on a site. Some common herbaceous weed control herbicides are: Oustar, Oust, and Arsenal, or tank mixes with Oust, Escort, Accord, and Arsenal. For the proper herbicide or mix for a hardwood site consult with an herbicide applicator, chemical company representative, or a registered forester in your area. Be sure the chemical used is labeled for over-spraying your hardwood seedlings; many chemicals labeled for pine over-spraying will kill hardwood seedlings.

Bush-hogging or mowing is not considered to be adequate weed control. Mowing increases sunlight to the seedlings, but does nothing to remove competition for moisture and nutrients below the ground. In the early years of a hardwood plantation, removing this below ground competition can make the difference between success and failure.

For additional information or help, contact the county office of your local Alabama Forestry Commission. These numbers are located in your local telephone directory or you can view the AFC office directory on-line at [www.forestry.state.al.us](http://www.forestry.state.al.us). ☎

## HARDWOOD REFORESTATION CHECKLIST FOR LANDOWNERS

- ✓The months of December to February are usually the best time to plant.
- ✓Select the best species and seed source for your site.
- ✓Determine the number of trees per acre.
- ✓Order your seedlings as early as possible.
- ✓Read about seedling quality and nursery conditioning.
- ✓Decide how, when, and where you will pick up the seedlings.
- ✓Decide on the best site preparation method.
- ✓Develop a herbaceous weed control plan.