Sustainable Forestry
Reforestation: Growing Tomorrow's Forests Today

Sustainable Forestry is a Goal of the American Forest & Paper Association

Guided by the Sustainable Forestry Initiative SM (SFI), member companies of the American Forest & Paper Association (AF&PA) are committed to a major goal: to ensure that future generations of Americans will have even more abundant forests than we enjoy today. Convinced that sound environmental policy and sound business practice go hand in hand, AF&PA members, who own approximately 90 percent of the industrial forestland in the United States, are dedicated to continually improve the practice of forestry on industrial forestland. Equally important, AF&PA members are promoting the same stewardship ethic among private forest landowners and loggers.

AF&PA member companies are committed to reforest their forestland within two years of final harvest by planting or direct seeding, or within five years using planned natural regeneration. Each year, AF&PA issues an annual report to the public on its membership's performance regarding compliance with and progress on sustainable forestry, including reforestation rates and timing. AF&PA member companies are also committed to broadening the practice of sustainable forestry by encouraging landowners who sell timber to reforest following harvest.

AF&PA members support and promote efforts by consulting foresters, state and federal agencies, state groups, and programs like the American Tree Farm System that assist non-industrial forest landowners with sustainable forest management on their lands. It is within the spirit of cooperation that we provide this brochure on "Reforestation-Growing Tomorrow's Forests Today." AF&PA member companies, through the SFI, are fully committed to encouraging the prompt reforestation of harvested areas in operations with other landowners. For more information about our commitment to Sustainable Forestry, call 1-800-878-8878, or visit our home page at: www.afandpa.org.

INTRODUCTION

America's richly, diverse forests provide vital products and amenities to our society. Through scientific management, sustained production of pulpwood, saw timber, veneer, poles, and chemical by-products is possible from our forests. Our nation's privately-owned forests also provide many important values not found on developed lands, including: quality habitat for wildlife, biodiversity of plant and animal communities, clean water, aesthetic benefits and recreational opportunities.

As one of the 10 million non-industrial private forest landowners in America who own 59 percent of the nation's timberland, your forests, management objectives, and reasons you own forest land have a tremendous impact on the quality, productivity, and sustainability of our forests. As a landowner, your forest land offers you many values and opportunities. Implementing sustainable forestry practices on your forestland can secure the longevity of your forestry investment creating a valuable resource and heritage for future generations.
Sustainable forestry can be viewed as the practice of a land stewardship ethic which integrates the reforestation, managing, growing, nurturing, and harvesting of trees for useful products with the conversation of soil, air, and water quality, wildlife and fish habitat, and aesthetics. Reforestation following harvest is the cornerstone of forest sustainability; therefore, a priority in forest management is establishing new stands of trees. Forest management is a cycle of renewal and harvest. Prompt reforestation ensures that new forests are in place to prevent soil erosion and protect water quality in streams and lakes. Many species of wildlife, such as quail, rabbit, deer, elk, moose, ruffed grouse and wild turkey, can be found using newly established forests for food, shelter and nesting.


"I believe reforestation is vital because if our forestland is not replanted, the forestry community doesn't have a future. Trees provide many benefits, such as promoting Mississippi's outdoor, recreational, and scenic resources; beautifying the countryside; and preventing soil erosion. In my 20 years in the Piney Woods of South Mississippi, every tract of timber I have logged except two were reforested. One of the two exceptions was made for the tract to be developed as real estate and the other tract was converted to pasture land. I try to influence landowners to reforest their land because the trees provide and sustain the livelihood of the entire forest products industry."

Donnie Burt, Petal, MS- Owner, Double B Land & Timber

"We don't have to replant, natural reproduction takes care of reforestation...we use selection harvests to remove older trees, always trying to favor better trees to improve the final products on the land...we like to make a profit if we can, but all our profit is not dollars in the bank...creating a piece of property to show, enjoy, and be proud of is important."

Dr. Frank Gilley, ME- 1992 National Outstanding Tree Farmer of the Year

"I've been logging for over 26 years and one of my main concerns has been that the land reforest itself. I guess that I could have made more money if we had just cut trees and found another patch, but that's really short-term thinking. You know when you think about it, this business isn't about today, it's about tomorrow. I want to make sure that there's plenty of timber to cut and woods to enjoy for future generations."

Dennis Brown, Rhinelander, WI- Owner, Brown Logging & Trucking

"...I don't reforest just because Oregon law says we have too, I
have a vision of management to pass it on to the next generation in a better condition than I received it...I'm not looking for short-term returns, forestry involves a whole host of riches including products, fish, water, and wildlife."

Wayne Krieger, Gold Beach, OR - 1993 National Outstanding Tree Farmer of the Year

Reforestation Objectives

"...along with wood production, wildlife habitat is a driving force behind management which promotes recreation for the family to enjoy...forestry is a long-term investment with returns down the road...It's important to pass on to the next generation. We view reforestation as a way to help the forest along, to promote species we want back, to select what grows well on different sites."

Don Solin, Deerbrook, WI - Tree Farmer

As a private landowner, your management objectives may or may not focus on growing forests to produce timber. Perhaps your interests center on managing wildlife habitat; creating aesthetically pleasing areas; protecting soil and water quality; or enhancing recreational opportunities, in addition to protecting and improving forest health and productivity. Practicing sustainable forestry goes beyond emphasizing production of timber from the forest to a philosophy of sustaining all forest values and the inherent ability to produce them. Prompt reforestation is a key to practicing sustainable forestry and ensures that impacts on other forest values from harvesting are managed to obtain the maximum benefits possible.

Reforestation Opportunities

Site preparation, planting, clearcutting, natural regeneration, uneven-aged management, direct seeding, group selection.....do you feel it is a daunting task to choose the "best" reforestation and management technique? Often, no single technique is "best"; your forest management objectives can likely be achieved using several different reforestation and management techniques. A good way to start sorting out your options is to become familiar with the practices used for reforestation in your area. Seek the advice of a professional forester to help you evaluate and plan effective reforestation practices to meet your forest management objectives. Your forest site, the species composition of your forest, and local markets dictate reforestation systems that are biologically and economically feasible.

LIFE CYCLE OF A MANAGED FOREST

It is best to choose a reforestation technique and management system before you conduct a harvest. The harvest not only removes products from the forest, but is the beginning of reforestation. Foresters use different harvest methods to create conditions favorable to regenerate new stands of trees. A
review of reforestation terms and concepts used by foresters throughout the nation will help you better understand your options. Throughout the various forest types in the U.S., forests are regenerated and managed as even-aged or uneven-aged stands. Many of our conifer (i.e. fir, spruce, pine) and hardwood stands regenerate to a single age class of trees and are considered even-aged. Even-aged reforestation involves removal of the mature overstory of trees, allowing a new crop of trees to be established. Uneven-aged systems maintain and regenerate stands with many age classes, generally composed of mature trees, pole-sized younger trees, and seedlings.

**Uneven-aged Methods**

**Methods suited to tree species which tolerate shade during the early stages of development**

"...reforestation and management (are) used for a multiplicity of values...timber harvests are important to pay taxes and to generate income from management of the investment. We use selection harvests and some clearcuts...It is important for our farm to stay in the family."

**John Schmidt, Bainbridge, OH- 1989 National Outstanding Tree Farmer of the Year**

Managing and regenerating forests in an uneven-aged condition requires removal of some trees of all sizes either singularly or in small groups. Two selection harvest systems used to remove merchantable trees, create openings for regeneration, and to release saplings and pole-sized trees are group selection and single tree selection.

**Group Selection-** Trees are removed in small group openings. The maximum width of a group opening may be up to twice the height of the mature trees. Small openings provide sites suitable for some species of fir, spruce, maple, red cedar and hemlock that can regenerate in partial shade. Larger openings that allow more light to reach the forest floor are generally used to regenerate species requiring more light such as Douglas-fir, oaks, yellow birch, and loblolly pine. With Group Selection, groups are not managed as separate stands. Regeneration, growth, and yield are managed over the entire forest tract.

**Single Tree Selection-** Individual trees of all size classes are removed more or less uniformly throughout the entire stand. Very small openings in the overstory allow a limited amount of sunlight to reach the forest floor. Generally, this system allows regeneration of only the most shade tolerant species like hemlock, beech and sugar maple. Single tree selection is also used on very dry and frost prone sites in some regions of the U.S. to regenerate species like ponderosa pine.

**Even-aged Methods**

**Methods suited for tree species which will not tolerate shade during the early stages of development**

Several reforestation systems and harvesting methods can be used to create even-aged stands. While specific treatments vary across the U.S. by tree species and climate, the basic systems are clearcutting, seed tree and shelterwood.

**Clearcutting-** removal, in a single cutting, of all overstory trees in a stand to develop a new stand in a shade free environment; reforestation occurs by natural seeding, direct seeding, planting, or sprouting. Harvest cutting may be done in groups or patches, or in strips. Each individual clearcut area is a unit in which regeneration, growth, and yield are managed. Within clearcuts, certain trees or groups of trees may be left for wildlife, and buffer strips are maintained to protect streams, wetlands, and special...
Planting or direct seeding are the most commonly used methods of reforestation when using clearcuts, but clearcuts can be designed to regenerate by natural seeding. The use of genetically improved seedlings—increasing growth and resistance to diseases and insects—can greatly improve the financial returns of your investment in reforestation. Common tree species regenerated using clearcutting include the southern pines, Douglas-fir, red and white oak, jack pine, white birch, aspen, and yellow-poplar.

**Seed Tree**

This even-aged reforestation method uses mature trees (usually 6 to 15 per acre) from the existing stand to provide seed for regenerating a new stand of trees. Seed trees are typically removed after regeneration is established, but can be retained for wildlife or aesthetics objectives. The primary objective of a seed tree regeneration harvest is to provide a natural seed source.

**Shelterwood**

Planting is sometimes used to supplement natural seeding. White pine, the southern pines and several species of oak may be regenerated using the seed tree harvesting method.

**Shelterwood** in this method, even-aged stands regenerate beneath the shade provided by mature trees from the previous stand. A typical sequence of treatments can include three distinct types of cuttings: 1) an optional preparatory cut that enhances conditions for seed production; 2) an establishment cut that also prepares the seed bed and provides seed for the new stand; and 3) a removal cut that releases established seedlings and saplings from competition with the overstory. Cutting may be done to leave seed-producing trees uniformly throughout the stand, in groups, or strips.

As with seed tree harvests, shelterwoods are sometimes planted to supplement natural seeding. Red and white oak, the southern pines, white pine, and sugar maple are examples of tree species that may be regenerated using the shelterwood harvesting method.

**Your Investment in Reforestation**

"… We don't have to replant, natural reproduction takes care of reforestation…we use selection harvests to remove older trees, always trying to favor better trees to improve the final product on the land…we like to make a profit if we can, but all our profit is not dollars in the bank...creating a piece of property to show, enjoy and be proud of is important."

Dr. Frank Gilley, ME - 1992 National Outstanding Tree Farmer of the Year

Periodic harvests of forest products provide the financial returns which allow a forest investment to pay its own way, and support active management for other sustainable components. Even though forest crops take several decades to reach maturity, returns on reforestation investment are attractive. For example, planted pine stands in the South can generate internal rates of return of 10 percent and greater—greater returns are possible with modern vegetation control practices utilizing herbicides, fertilization and the use of genetically improved tree seedlings.
Your reforestation investment can also generate intangible returns not easily reflected in dollar values. Practicing a sustainable forestland stewardship ethic to enhance and perpetuate your forest creates a legacy that you can pass on to your family and future generations. Developing wildlife habitat for favored species, and creating aesthetic and recreational opportunities can generate personal, as well as financial rewards.

Your state may have guidelines or regulations that encourage or require prompt reforestation after harvest. Financial incentives may be available from state and federal sources to share the cost of establishing new tree stands. Some states offer incentive programs to promote and share the cost of tree planting and vegetation control. Various federal programs also provide partial financial assistance. In addition, tax incentives exist for forest management activities, including reforestation. One such incentive allows landowners to take a 10 percent investment tax credit and a seven year amortization schedule for 95 percent of their reforestation expenses up to 10,000 annually.

**Forest Industry Programs**

Many forest products companies also provide forest management assistance to landowners. Services may include site preparation, providing free or at-cost seedlings, tree planting, assistance in developing management plans, and economic consultations. Thousands of landowners are enrolled in formal assistance programs sponsored by the forest products industry throughout the southern U.S. and in many states in the Northeast and Lake States regions. Each year, tens of millions of seedlings are provided at no cost to non-industrial forest landowners by the forest products industry.

**Where Can You Learn More About Reforestation?**

Many forest products companies have a staff of professional foresters to help you plan and execute prompt and effective reforestation programs. Professional consulting foresters can design and carry out management plans to meet your sustainable forestry objectives. They will represent you and can handle all aspects of timber management and reforestation.

State forestry agencies can provide technical assistance and information about reforestation options available to you. Through land grant and designated universities, extension education in forestry is offered in 40 forested states by over 350 forestry agents and university specialists. There are over 3,300 country extension offices to help get you started.

The person who gave you this publication can suggest local contacts to receive more information, education, and assistance from the following agencies and organizations that will be happy to help you learn more about reforestation options and sustainable forestry:

- AF&PA member-company foresters and landowner assistance programs
- American Tree Farm System
- State forestry or logging association
- State forestry agency- contact local offices in your county or parish
- Local offices of the Cooperative Extension Service

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**45-Year Douglas-Fir Rotation**

Douglas-fir can provide a long-term sustained investment on productive site. Site preparation and planting are used to establish high quality seedlings and to control competing vegetation. If necessary, young seedlings and saplings can be released from competition by chemical treatments. Commercial harvests begin in 20 to 25 years when stands are thinned with net returns of up to $500 or more per acre. Additional thinnings beginning at age 35 to 40 can generate net returns of up to $5,000 or more per acre. Stands are typically thinned at 10 to 15 year intervals until final harvest.
"Prompt reforestation…is essential if (we are) to provide a sustainable supply of forest products and other benefits of the forest…for future needs. Reforestation on non-industrial private lands is a good financial investment as well as an investment in the well-being of future generations by providing forest product needs, wildlife habitat…and clean water."

Preston Padgett, Counce, TN- Tenneco Packaging; Chairman AF&PA Landowner Assistant Committee