

Forest Management Alternatives For Private Landowners

Forest management can be a profitable enterprise if you do the following:

- Put in place the forestry practices needed to meet your forest management objectives.
- Seek and follow the advice of a professional forester.
- Take advantage of tax incentives and financial assistance programs.
- Use the proper marketing methods.
- Maintain good business records to guide you in making financial decisions.

This publication will explain many of the forestry alternatives available to you. A forester can help you choose the forestry practices best suited to your timberlands, but you must make the business and financial decisions. Your Extension office has other publications that may help you as well. Extension Publication 1250, *Forestry Terms for Forest Landowners*, will help you understand many of the forestry terms used in this publication.

Why Do You Need Alternatives?

Forestry sometimes requires a relatively long-term commitment of interest and money. Before you make such a commitment, you should consider your ownership objectives. Why do you own timberland? What are your short- and long-range goals regarding the use of these lands? How interested are you in learning about forestry practices? Do you have time to take an active role in management? Are your children interested in the land?

Economic Considerations

Some forestry practices require heavy equipment or much labor and may be too costly for some landowners. You may be able to achieve the same result for less money with another method.

As you decide how much money you can afford to invest, don't overlook the tax benefits and cost-share programs available to you. You may be able to afford more than you think. Tax provisions to help you recover your costs include investment tax credit for reforestation, the amortization recovery of reforestation costs, capital gains tax treatment, and depletion deduction. You may also be eligible for government cost-share programs that will help pay for certain management practices. These are available through the US Department of Agriculture or the Mississippi Forestry Commission.

Land-Use Considerations

What is your primary ownership objective -- to produce maximum income, improve wildlife habitat, increase recreational opportunities, or all three? You can produce timber and still have wildlife and recreation, but you may not be able to have all three on the same acre during certain times in the production cycle. The management alternatives you choose will enhance some uses more than others, depending upon the way they are applied and their intensity. If your acreage is small, you may have to decide which forestry practice is best suited to your main objective. The location and size of your forestland may influence the cost and practicality of some practices. For example, using large equipment may be too costly for small, inaccessible tracts of land.

Management Plan

A management plan is a comprehensive program of cultural treatments during the life of a timberstand. It provides for managing the existing stand and preparing for the next crop. Following a management plan can reduce the cost of good forestry because you can choose practices that fit your ownership objectives, timberland conditions, and pocketbook without reducing timber production.

Many landowners harvest without prior planning when their timber matures. The result may be a costly clean-up before a new crop can be established. If you are caught in this situation, you have two alternatives: 1) spend a lot of money for chemical or mechanical site preparation and tree planting, or 2) do nothing. If you do nothing, you may end up with a low-quality, low-value forest.

There is no rigid set of forestry practices that every landowner should follow. A consulting forester can help you develop a management program for your timberlands that is tailored to your situation. The management program you choose should be described in a written plan. The management plan will outline the alternatives, describe the current conditions and needs of your timber, provide a timetable for prescribed practices, and estimate the costs and returns for anticipated products during the production period. The production period is called "rotation length" for even-aged management or "cutting cycle" for all-aged management. Your ownership objectives will determine the type and intensity of prescribed management practices, the desired tree species and product, and the amount of time, money, and protection necessary.

Harvesting and Regeneration Alternatives

To a forester, the methods used to harvest and regenerate a forest stand are called "silvicultural systems." To a private landowner, these same methods are called "management alternatives." A silvicultural system is a planned program to establish a new crop of trees and enhance their growth.

Harvesting and regenerating should not be considered separate practices. The method used to harvest the final crop plays an important part in starting the next crop. The final harvest is not just the end of a production period, but also the beginning of a new production period! A final harvest is different from thinning and timber stand improvement, which are intermediate cuts. Intermediate cuts are used with all management systems to improve the spacing and growth rate of crop trees.

The practices of harvesting and regenerating timber stands are classified according to the type of harvest cutting used, including artificial and natural regeneration.

Natural Regeneration

Natural regeneration methods use existing trees to provide seed to germinate into the next crop of trees. Natural regeneration systems are even-aged or all-aged. Even-aged management encourages reproduction at the same time, producing a new crop about the same age. These systems include strip clearcutting, seed tree, and shelterwood. By contrast, all-aged systems manage trees of all sizes and ages. Selectively cutting single trees or small groups of trees is used in all-aged management.

Strip Clearcut System

Clearcutting all the trees on a site for regeneration is an acceptable approach to regeneration for species that demand full sunlight. The most suitable species also have light, wind-blown seed or are prolific sprouters. These include all the southern yellow pines, ashes, cottonwood, and yellow poplar. This approach produces an even-aged stand. When using clearcutting for natural regeneration, seedfall from adjacent mature timber provides the source for reproduction. Therefore, clearcut strips need to be narrow (no wider than 200 feet), perpendicular to prevailing winds, and on the leeward side of a forested stand. This setup encourages seed from mature trees to blow across the site.

In strip clearcutting, seedbed preparation is very important. The site should be cleared of vegetation with mineral soil exposed. Site preparation may require you to use herbicides or heavy equipment to kill or remove vegetation. If logging disturbance did not expose enough mineral soil, the site may need a prescribed burn, disking, or both before seedfall.

Seed Tree System

The seed tree method is a form of even-aged management. Most mature trees are harvested, leaving 4 to 15 large, seed-producing trees per acre. Seed trees should be good seed producers and at least 14 to 18 inches in diameter. If you select seed trees several years before the final harvest, you can prepare them for their seed production role during thinning operations by giving them more growing space for crown development.

The seed-tree system is used for light-seeded species that frequently produce good seed crops. Examples of such species include loblolly or shortleaf pines, ash, or yellow poplar. The site must be prepared by exposing bare soil and removing competing vegetation. You can use prescribed fire in pine stands and tree injection before the final crop is harvested to substantially reduce regeneration costs. If you do not remove competing vegetation before the final harvest, you may be forced to use more expensive mechanical or chemical site preparation practices.

There are risks to using natural regeneration by the seed tree method. You may lose several seed trees

to lightning, wind, and insects before the new crop is established and the seed trees harvested. Good seed crops come every 2 to 5 years, so competing vegetation must be controlled for several years while seed is produced. This will increase the chances for adequate seed germination and seedling survival when a good seed year arrives.

Shelterwood System

The shelterwood system is another even-aged, natural regeneration system. The shelterwood uses more trees for the seed crop, generally 15 to 30 trees per acre. Seed trees should be 14 to 18 inches in diameter. The overstory trees are removed in a series of two or more harvest cuts. During the preparatory thinning, trees of sawtimber size are selectively marked and cut to favor the better, dominant seed-producing trees that will shelter the new crop. The seed cut leaves the best trees for the seed crop. The last harvest removes the shelterwood after the new crop is well established.

The shelterwood system is the most versatile natural regeneration system because you have many opportunities to market the old stand and regenerate the new crop. Trees can be removed in several thinning over time, depending upon regeneration and market conditions. The shelterwood trees must have enough volume to make logging economical. If market conditions are bad, the growth rate and volume of the seed trees are sufficient to justify carrying them for many years. There should be enough seed distributed across a stand to assure rapid regeneration. Since the new crop is established under the old crop, there is no delay between the final harvest and the start of the new crop. In fact, the new crop may be several years old before the high-value shelterwood trees are harvested. The shelterwood system is suitable for all of the southern yellow pines, especially longleaf, as well as heavier seeded species, such as oaks.

Single-Tree and Group Selection System

The single tree or group selection systems are natural regeneration methods for all-aged forest management. Small groups of trees or individuals are harvested to create small openings with sufficient sunlight to allow seed germination or root sprout development. Group selection is actually clearcutting on 1- to 2-acre areas. The selection systems can be used for pines or hardwoods.

Under all-aged management, cutting is done periodically across the forest for thinning, harvest, and regeneration. With the help of a forester, these methods can be desirable alternatives for landowners because cutting cycles provide periodic income, and the cost of natural regeneration is relatively low. On the other hand, harvest volume per acre is lower than with even-aged systems, which will increase logging costs. Moreover, improper use of the selection system

can lead to "high grading." High grading involves the removal of the most commercially valuable trees, leaving trees of poor condition and quality. High grading is counter to all-aged management. Quality seed trees must be left in openings or around the perimeter to provide seed. The poorest quality trees should be removed to provide space for the new crop.

Artificial Regeneration

Artificial regeneration involves clearcutting a large area at one time and planting trees by hand or machine. Artificial regeneration of pine is a common and very effective method of regeneration. A few hardwood species can be planted successfully, but they require intensive cultivation for many years. Artificial regeneration is the only option in stands that do not have enough desirable species for natural regeneration.

Artificial regeneration, or clearcutting and planting, often requires expensive site preparation, but it has several advantages when properly used. Large harvest volumes reduce the proportion of money spent on logging, increasing the landowner's net income from a sale. Clearcutting followed by chemical or mechanical site preparation increases seedling survival and early growth for prompt, successful regeneration of the new crop. Planting insures the proper spacing for complete utilization of the growing space and improves the growth rate of individual trees. However, if you have a small acreage on even-aged management, it will take quite some time after the site is harvested and replanted before you get any income from the first thinning.

Site preparation costs can be reduced or eliminated if timberstand improvement practices such as prescribed burning and cull tree removal are used before clearcutting. If site preparation costs are kept low, the cost of tree planting or direct seeding is reasonable. However, the proper use of selective thinning and other timberstand improvement practices can eliminate the need for clearcutting in some forest stands.

Site Preparation Alternatives

Site preparation can be an expensive practice in any regeneration harvest. Site preparation costs may determine whether or not you can afford to continue practicing forestry. With proper planning and a good management plan, you can reduce regeneration costs by using timber stand improvement practices now. For example, prescribed burning and cull tree removal before the harvest of a pine stand may eliminate the need for site preparation after a final harvest. The site would be ready to receive natural seeding or planted tree seedlings. In hardwood stands, cull trees can be removed to prepare for natural regeneration after a final harvest.

Site Preparation Practice	Description-Application	Relative Cost
Prescribed fire	3 to 5 year intervals in pine stands to reduce wild fire hazard and kill small undesirable hardwoods, usually done in winter. Also for site cleanup following logging and mechanical site preparation, usually applied in summer.	very low
Tree injection	Herbicides injected into undesirable trees through a cut surface on trunk; applied in late summer - mid-winter.	low
Herbicide pellets and granules	Used in pine stands to kill undesirable hardwoods and on pine sites for site preparation prior to planting or seeding.	medium
Herbicide sprays	Applied from the air and from the ground for site preparation of pine sites. Basal sprays used on individual hardwood stems for pine release. Nonselective herbicides present a drift hazard.	medium
Mechanical chopping	A large, rolling drum pulled by a tractor or skidder. The heavy drum has sharp blades for uprooting, cutting, and crushing woody vegetation. Can be used on relatively steep slopes with minimum soil disturbance.	medium
Disking	Use on pine sites where woody vegetation is small and soil is not subject to erosion. Hardwood plantations are disked for several years after planting.	medium
Root raking and piling	Usually follows shearing to remove large roots and debris. Considerable topsoil may end up in debris piles, and soil between the piles is compacted from repeated trips by the heavy equipment. Should not be used on steep slopes and erodible soils.	medium
Shearing and KG Blading	Used to remove a large number of undesirable trees too large for drum chopping. Shearing blades are angled or V-shaped with serrated or toothed edges and have a "stinger" for splitting large trees.	very high

Marketing Guidelines

Timber cutting and harvesting is crucial to sound forest management; it is the way stands are manipulated to meet landowners' objectives. Marketing that timber wisely is essential if the landowner is to receive the best price and satisfaction with the logging operation. However, achieving this end requires both smart and hard work. A landowner may see only a couple timber sales from his or her property, but loggers and timber buyers do this daily all year long. The landowner is at a distinct disadvantage of knowledge and experience when selling timber. However, there are some steps landowners can take to market timber better.

Guidelines to Help Market Your Timber

1. Get professional help from a professional forester when preparing a timber sale. A consulting forester's commission may be 6 to 10 percent of the sale price, but they achieve 20 to 30 percent higher prices than landowners who sell on their own. Mississippi State University maintains a website listing registered foresters in Mississippi at www.cfr.msstate.edu/borf/.
2. Become knowledgeable about market conditions, measurement units, and prices. Prices are cyclical and vary with weather conditions and access. Statewide average prices are available online through the MSU Extension Forestry site at <http://msucares.com/forestry/prices/reports/index.html>.
3. Follow a timber marketing procedure; don't merely sell your timber. You need to have a strategy when marketing timber. This includes timing the sale to coincide with higher prices and advertising your property's advantages to command higher prices.
4. Know how much timber you have and where it is located. If a timber buyer realizes that you don't know what you have, he will bid as low as possible. Access to the timber and proximity of markets are very important in considering the costs of logging.
5. "Bank on the stump" until market conditions and prices are satisfactory. You do have some flexibility when to place timber on the market.
6. Obtain the best price by advertising for competitive bids. Sealed bids are best, giving buyers one chance to offer their best price. However, this strategy only works to your advantage when you follow steps 1 through 4.
7. Improve the condition of your timberlands with each harvest. Thinning and timber stand improvement are opportunities to remove cull trees, allowing better and healthier trees to grow bigger. With intermediate cutting, price is not the sole driving factor. Finding someone willing to do this work is often the greatest challenge. Scheduling thinning or TSI during a harvest is an excellent strategy.
8. Maintain good records of timber sale volumes, incomes, and costs. All of this information is useful when preparing taxes, especially to make sure you don't pay more tax than necessary.
9. Work with a forester and an attorney to draft a timber sale agreement or contract. The timber sale prospectus should have all the vital information regarding the tract ownership, inventory, location, access, and conditions of the sale. These conditions should specify how the payment is to be made and require the use of Mississippi Best Management Practices.
10. Check your tax situation before you make a timber sale. Taxes are paid on timber revenues, less the sale costs and timber basis. If you don't know your basis, hire a forester to figure it out before the sale. Also, the way you file your timber taxes affects which accounting rules apply for your tax calculations.

Financial Assistance Alternatives

There are cost-sharing incentive programs that will pay a portion of the cost for many forest management activities. The state or federal government generally administers these. The Mississippi Forestry Commission has the Forest Resource Development Program (FRDP), which will assist landowners with site preparation, competition release, prescribed burning, and regeneration. The Natural Resource Conservation Service administers the Environmental Quality Improvement Program (EQIP) and Wildlife Habitat Improvement Program (WHIP) that assist with practices enhancing multiple forestry uses. The Farm Service Agency administers the Conservation Reserve Program (CRP), which promotes the retirement of erodible land from farming into permanent cover, such as pasture or forest.

Tax Considerations and Alternatives

Reforestation costs may be partially recovered through special federal and state tax treatment. There are special federal and state tax credits for reforestation or afforestation available to the private landowner, including those landowners who receive cost-share. Private landowners who are planting trees for commercial timber production may deduct up to \$10,000 per year in such costs. All costs over \$10,000 per year are amortized, or deducted over time according to a set schedule. Landowners can recover costs of either artificial or natural regeneration through the special tax treatment.

In addition, Mississippi has a special reforestation tax credit for residents who establish a new forest on land in the state. The credit applies to costs for site preparation and reforestation. Taxpayers can use this credit in addition to the federal deductions on the same practices. This credit allows taxpayers to reduce 50 percent of their Mississippi taxes up to \$10,000 the cost on approved practices in any given year. The Mississippi reforestation tax credit program has a lifetime limit of \$75,000 per taxpayer.

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