



Forest Management Alternatives For Private Landowners

Forest management can be a profitable enterprise if you (1) choose and implement the forestry practices needed to meet your forest management objectives; (2) seek and follow the advice of a professional forester; (3) take advantage of tax incentives and financial assistance programs; (4) use the proper marketing methods; and (5) 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 and 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? Your age and family structure are also important.

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 end result for less money by using a less intensive practice. Different alternatives help you get your timberlands to full production, but may be less expensive.

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. Provisions to help you pay for or recover your costs include: investment tax credit for reforestation, the amortization recovery of reforestation costs, capital gains tax treatment, depletion deduction and cost-share programs.

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 have all three uses on the same acre during certain times in the production cycle. The management alternatives you choose will enhance some uses more than others, depending on the method and intensity with which you apply them. If your ownership acreage is small, you may have to decide which forestry practice is best suited to your primary ownership objective. The location and size of your forestland may influence the cost and practicality of some practices. For example, the use of large equipment may be too costly for small, inaccessible tracts of land.

Management Plan

A management plan is a comprehensive, planned program of cultural treatments during the life of a timberstand. It provides for managing the existing stand as well as 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 their timber without prior planning as it 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 only two alternatives: to spend a lot of money for mechanical site preparation and tree planting, or to do nothing. If you do nothing, you may end up with a low quality and low value forest.

There is no rigid set of forestry practices for every

landowner to follow. A consulting forester can help you develop a management program that is customized for your timberlands. The management program you choose should be described in a written management 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 (called rotation length). Your ownership objectives will determine the type and intensity of prescribed management practices, the desired tree species and product, and time, money, and protection that are needed.

Harvesting and Regeneration Alternatives

A forester refers to the methods used to harvest and regenerate a forest stand as silvicultural systems. A private landowner refers to these harvesting and regeneration methods as management alternatives. A silvicultural system is a planned program to establish a new crop of trees, and to enhance their growth.

Harvesting and regeneration should not be considered separate practices. The method used to harvest the final crop plays an important part in starting a new crop. The final harvest is not only the end of a production period, but also the beginning of a new production period! Do not confuse a final harvest with selective thinnings and improvement cuts, which are intermediate harvests. Intermediate harvests are used with all management systems to improve the spacing and growth rate of crop trees.

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

Seed-tree System

Mature trees are harvested in one operation, leaving four to twelve dominant, seed-producing trees per acre. Seed trees should have well developed crowns and be good seed producers. If you select seed trees several years prior to the final harvest, you can prepare them during thinning operations for their seed production role by giving them more growing space for crown development.

The seed-tree system is used for light-seeded species such as pine and ash. 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 reduced regeneration cost. If you do not remove competing vegetation before the final harvest, you may be forced to use expensive mechanical or chemical site preparation practices.

The value of the seed tree may exceed the cost of artificial regeneration. You may lose several seed trees to

lightning, wind, and insects before the new crop is established and the seed trees harvested. In such cases, you may be better off to sell the seed trees and use the money to prepare the site for planting. Good seed crops come every two to five years so competing vegetation must be controlled before the final harvest, and possibly retreated after the seed trees are released. This will increase the chances for adequate seed germination and seedling survival when a good seed year arrives.

Shelterwood System

The shelterwood system is a natural regeneration system in which a new crop is established under the protection of 18 to 40 overstory trees. The overstory trees are removed in a series of two or more harvest cuts. The last harvest removes the shelterwood after the new crop is well established. During the preparatory thinnings, trees of sawtimber size are selectively marked and cut to favor the better, dominant seed-producing trees that will shelter the new crop.

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 thinnings 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.

Single-Tree and Group Selection System

The selection system is a natural regeneration system in which individual trees or small groups of trees are harvested to create small openings with sufficient sunlight to allow seed germination or root sprout development. Group selection is actually clearcutting on small areas of no more than an acre or two in size.

The selection system can be used for pines or hardwoods. With the help of a forester, it can be a desirable alternative for you because frequent thinnings can provide periodic incomes and the cost of natural regeneration is relatively low. The major disadvantage is that harvest volumes per acre may be low which will increase logging costs. Improper use of the selection system can lead to "high grading." High grading is the removal of the most commercially valuable trees, leaving tress of poor condition and quality. Quality seed trees must be left in openings or around the perimeter to provide seed sprouts while the poorest quality trees should be removed to provide space for the new crop.

Clearcutting System

Clearcutting is an even-aged silvicultural system in which the old crop is completely harvested (cleared) at one time from a large area (generally more than a few acres). Regeneration of pine stands is often done "artificially" by planting or seeding. Natural seeding is possible from seed produced by trees around the clearing or seed stored in the duff-litter layer on the forest floor. Hardwood stands are regenerated naturally from seed and sprouts. A few hardwood species can be planted successfully, but they require intensive cultivation for many years.

Clearcutting is a valid management practice for species that require full sunlight for seed germination, sprout development, or seedling survival, such as the southern pines, yellow poplar, oaks, and most commercially important hardwoods. It is the only alternative in stands that do not have enough desirable species for natural regeneration. Clearcutting often requires expensive site preparation practices, but when properly used, it has several advantages over other silvicultural systems. Large harvest volumes reduce logging costs and increase the landowner's 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.

Some landowners have clearcut their timber because they did not know about other alternatives. After a clearcut you have two choices: (1) spend a lot of money to prepare the site and replant or (2) do nothing. Clearcutting is an alternative for a private landowner only if you can afford the cost of site preparation and planting or seeding and if you are willing to wait 12 to 15 years for the next income.

Site preparation costs can be reduced or eliminated if timberstand improvement practices such as prescribed burning and cull tree removal are used prior to clearcutting. If site preparation costs are kept low, the cost of tree planting or direct seeding are not unreasonable. However, the proper use of selective thinning and other timberstand improvement practices can eliminate the need for clearcutting in some forest stands.

Diameter Limit/High Grading

Diameter limit cutting is the harvesting of all trees larger than a specified diameter. Diameter limit cuts high grade the larger, quality trees and leave the small, slow growing trees. Stands that are high graded several times will eventually have to be clear cut because only the poorest trees are left.

Site Preparation Alternatives

Site preparation can be the most expensive practice in any harvesting and regeneration system. Site prepara-

tion costs may determine whether or not you can afford to continue practicing forestry. With proper planning and a good management program, you can reduce regeneration costs by using timber stand improvement practices now. For example, prescribed burning and cull tree removal prior to 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 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 wildfire hazard and kill small undesirable hardwoods; for site cleanup following logging and mechanical site preparation. Usually applied in winter.	very low
Tree injection	Herbicides injected into undesirable trees through a cut surface on trunk; applied in late summer to 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. Non-selective herbicides present a drift hazard.	medium
Mechanical chopping	A large, rolling drum pulled by a dozer. The heavy drum has sharp blades for uprooting, cutting, and compacting 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
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

Site Preparation Practice	Description-Application	Relative Cost
Root raking and piling	Usually follows shearing to remove large roots and debris. Considerable topsoil ends up in windrows and soil between the windrows is compacted from repeated trips by the heavy dozer. Should not be used on steep slopes and erodible soils.	medium

Marketing Guidelines

1. Get help from a professional forester in preparing a timber sale.
2. Become knowledgeable about market conditions, measurement units, and prices.
3. Follow a timber marketing procedure; don't merely sell your timber.
4. Know how much timber you have and where it is located.
5. Bank "on the stump" until market conditions and prices are satisfactory.
6. Obtain the best price by advertising for competitive bids.
7. Improve the condition of your timberlands with each harvest.
8. Maintain good records of timber sale volumes, incomes, and costs.
9. Coordinate the efforts of a forester and an attorney in drafting a timber sale agreement or contract.
10. Check your tax situation before you make a timber sale.

Financial Assistance Alternatives

Two cost-sharing incentive programs that will pay up to 50 percent of the cost of approved forestry practices such as site preparation, tree planting, timberstand improvement practices, and practices for natural regeneration are the Forest Resource Development Program (FRDP) and the Forest Incentive Program (FIP). Contact your local Mississippi Forestry Commission, Farm Services Agency, or Natural Resources Conservation Service office for more information about these programs.

Tax 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. In addition, federal tax law allows landowners to amortize (deduct) up to \$10,000 in reforestation expenses over 8 tax years. The \$10,000 is an annual limit, so landowners who have more than \$10,000 in expenses will want to spread their reforestation efforts over several years to reduce the total costs of reforestation. Federal tax treatment of reforestation expenses is explained in Mississippi Extension Forestry Publication 2102--Forestry Income Tax Series-2: *Handling Reforestation Expenses*. Details on the Mississippi Reforestation Tax Credit are found in Mississippi Extension Forestry Management Technical Note 14-C: *Mississippi's Reforestation Tax Credit*. Landowners who are interested in forest taxation may wish to enroll the Timber Tax Fundamentals shortcourse taught by MSU Extension Service, Forestry Department. Contact your county agent for forest tax publications and information on upcoming Timber Tax Fundamentals shortcourses. Further information may be obtained from the MSU Extension Forestry Internet site: <http://www.ext.msstate.edu/anr/forestry/>.



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