Forest Management Alternatives for Private Landowners

Forest management can be profitable if you (1) put in place the forestry practices needed to meet your forest management goals; (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 also may help you. 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 long-term commitment of interest and money. Before you make such a commitment, you should consider your ownership goals. Why do you own timberland, and what are your short- and long-term goals for these lands? How interested are you in learning about forestry practices? Do you have the time and energy 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 end result for less money by using 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. 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 goal. The location and size of your forestland may influence which practices you choose. For example, the use of large equipment may be too costly for small, inaccessible tracts of land.

Management Plan

A management plan is a thorough plan of cultural treatments during the life of a timber stand. It manages the existing stand as well as prepares for the next crop. Following a management plan can reduce the cost of good forestry because you can choose practices that fit your ownership goals, timberland conditions, and pocketbook without reducing timber production.

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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 choices: spend a lot of money for mechanical site preparation and tree planting, or 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 for every landowner to follow. A consultant can help you develop a management program especially for your timberlands. Describe the management program you choose in a written management plan that outlines the alternatives, describes the current conditions and needs of your timber, provides a timetable for prescribed practices, and estimates the costs and returns for anticipated products during the production period (called rotation length). Your ownership goals will determine the type and intensity of prescribed management practices, the desired tree species and product, and the time, money, and protection 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 enhance their growth.

Do not think of harvesting and regeneration as 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 4 to 12 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 before the final harvest, you can prepare them during thinning operations for seed production by giving them more growing space for crown development.

The seed-tree system is used for light-seeded species such as pine and ash. Prepare the site by uncovering bare soil and removing competing vegetation. You can substantially reduce regeneration costs by using prescribed fire in pine stands and tree injection before the final crop is harvested. 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 be more than 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 are harvested. In such cases, you may be better off selling the seed trees and using the money to prepare the site for planting. Good seed crops come every 2 to 5 years, so competing vegetation must be controlled before the final harvest, and possibly re-treated after the seed trees are released. This will increase the chances for successful 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 chosen, marked, and cut to favor the better, dominant seed-producing trees that will shelter the new crop.

The shelterwood system is the most flexible 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 enough sunlight to allow seed germination or root sprout development. Group selection is actually clearcutting on small areas of no more than 1 or 2 acres.

The selection system can be used for pines or hardwoods. With the help of a forester, it can be a good alternative for you because frequent thinnings can provide periodic income and the cost of natural regeneration is relatively low. The major disadvantage is that harvest volumes per acre may be low, which will increase log-

ging costs. Improper use of the selection system can lead to "high grading." High grading is the removal of the most commercially valuable trees, leaving trees of poor condition and quality. Quality seed trees must be left in openings or around the edges 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 regenerate 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 southern pines, yellow poplar, oaks, and most commercially important hardwoods. It is the only option in stands that do not have enough of the right species for natural regeneration. Clearcutting often needs 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 timely, successful regeneration of the new crop. Planting ensures the proper spacing for complete use of the growing space and improves the growth rate of individual trees.

Some landowners clearcut their timber because they do not know about other choices. 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 timber stand 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 are reasonable. However, the proper use of selective thinning and other timber stand improvement practices can eliminate the need for clearcutting in some forest stands.

Diameter Limit/High Grading

Diameter limit cutting, or high grading, is the harvesting of all trees larger than a certain diameter. Diameter limit cuts the larger, quality trees and leaves the small, slow-growing trees. Stands that are high graded several times will eventually have to be clearcut 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 preparation costs may tell you whether or not you can afford to continue in 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 before the harvest of a pine stand may mean you need no 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. ***(See chart on next page.)***

Guidelines to Help Sell Your Timber

1. Get help from a professional forester in preparing a timber sale.
2. Learn 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. Use both 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, timber stand 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

You may be able to recover some of your site prepara-

tion and reforestation costs through special federal and state tax treatment. 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 (deducted over time according to a set schedule). You can recover the costs of both artificial regeneration (planting seedlings) and natural regeneration through the special tax treatment.

In addition, several federal cost-share programs and one state program are available. These programs share the cost of site preparation with the government. Apply for these programs through your local Mississippi Forestry Commission office or the local Natural Resource Conservation Service.

The state of Mississippi has a special tax credit for Mississippi taxpayers who establish a new forest on Mississippi land. The credit is for the costs of site preparation and reforestation. You can take this credit in addition to the federal deductions on the same practices. This credit allows you to reduce your Mississippi taxes by up to 50 percent of the cost of approved practices. The Mississippi tax credit program has a lifetime limit of $10,000 per taxpayer.

To find publications on the federal and state tax programs for reforestation, contact your local Extension office or visit http://msucares.com/forestry/ and click on Timber Taxation. You can learn the basics of timber taxation by attending a Timber Tax Fundamentals Short Course. Check with the local Extension office to find a short course nearby or to request more information.

Site Preparation Alternatives

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 will not erode. 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 toothed edges and have a "stinger" for splitting large trees.	very high
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

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Publication 1337
Extension Service of Mississippi State University, cooperating with U.S. Department of Agriculture. Published in furtherance of Acts of Congress, May 8 and June 30, 1914. VANCE H. WATSON, Interim Director (POD 10/05)