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## Problems and Limitations of Long-Term Timberland Leases For Non-Industrial Private Landowners

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**PROBLEMS AND LIMITATIONS OF  
LONG-TERM TIMBERLAND LEASES  
FOR NON-INDUSTRIAL PRIVATE  
LANDOWNERS**

**By**

**Stephen M. Butler**



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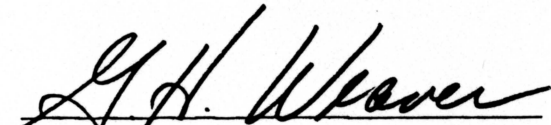
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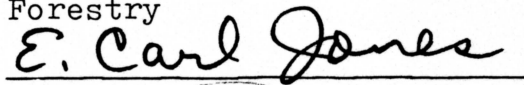
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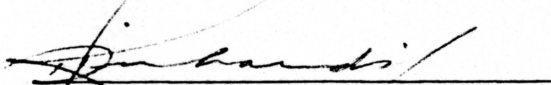
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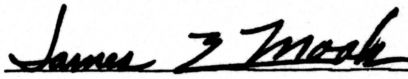
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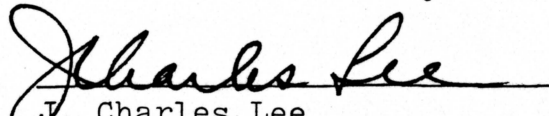
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## ABSTRACT

Over seven million acres of non-industrial private forest land are controlled by the forest industry under long-term lease agreements. While many landowners appear to be content with these arrangements, others are dissatisfied. Landowners should be aware of the potential benefits, problems, and costs of the long-term commitments.



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## INTRODUCTION

Over seven million acres of southern commercial timberland are currently under long-term lease to forest industry (Siegel 1973). Much of this land is held by absentee landowners and estates. Lease agreements often appear to be satisfactory arrangements which will benefit both the lessee and lessor. This, however, may not be true over the duration of the lease. Landowners complain that arrangements are overly advantageous to the lessee at the landowner's expense.

The purpose of this paper is to discuss landowner problems associated with long-term leasing. Solutions to some of these problems are suggested. Alternatives for increasing timber production from non-industrial private lands will be discussed. This information will assist the landowner in selecting the best management alternative to meet his goals.

## HISTORY

Industrial long-term (ten years or more) leasing of timberland was initiated in the 1930's by the Union Bag Paper Corporation (now Union Camp Corporation) and the St. Regis Paper Company (Jones 1965). Early leases were generally arranged for a term of ninety-nine years. Frequently the lessor's only consideration was either a single lump-sum payment at the lease initiation, or a fixed annual rental payment. In 1947, the St. Regis Paper Company supplemented its leasing program with a long-term cutting contract. This system provides company management of the property for timber production. Payments to the landowner/lessor are based upon timber removals (Landis 1968). Until the 1950's, these two firms dominated the leasing market.

With higher land costs and uncertain timber supplies, other companies initiated leasing programs. Several types of lease agreements were designed to meet the individual needs and requirements of the firm. The number of forested acres under lease in the south has increased from 3.6 million acres

in 1961 (Bradley 1967) to 6.7 million acres in 1970 (Siegel 1973).

#### COMPANY MOTIVATION

Firms with active lease programs cite four major reasons for their involvement in leasing (Sizemore 1973). Foremost, many landowners are unwilling or unable to sell their land. Industry increased its land holdings from 59.5 million acres in 1970, and continues to acquire fee lands. However, the acreage in non-industrial private holdings is still four times larger than the acreage owned by the forest industry. With landowners being reluctant to sell their land, leasing is often the only means of controlling land to guarantee supplies of raw material.

Additionally, while firms might want to purchase more land, sufficient funds may not be available for all the investment needs of the firm. Thirdly, long term agreements often include purchase options to be exercised during or at the expiration of the lease. These options may represent the only way the firm may acquire fee title. Purchase options frequently provide the firm a purchase price lower than market value.

A fourth reason for leasing is that the rate of return on forestry investments is low. Capital requirements of fee ownership are high. Generally, leases reduce the investment cost without significantly reducing the net cash flow. Thus, leasing offers firms the opportunity to use capital more efficiently.

The underlying factor basic to all of the above reasons is that industry lacks an assured supply of raw material. Over seventy percent of the South's commercial forestland is held by the non-industrial private landowner (U.S. Forest Service 1973). Currently, these lands are estimated to be producing at only one-half of their potential (Southern Forest Resources Analysis Committee 1969). Demand for forest products



is expected to double over the next twenty-five years. Industry foresees the potential problem of limited supplies and eventual shortages if output from the non-industrial landowners is not improved.

Companies cite the desire to maintain a mixed land ownership pattern as a reason for leasing. They fear being subjected to discriminatory taxation should too large a concentration of fee lands be held (Greene 1979).

Leasing offers benefits to society as a whole. Shortages of timber are predicted to occur if output from non-industrial private lands is not improved. Leasing offers a means of increasing production from these lands. A recent report from the President's Advisory Panel on Timber and the Environment advocated public leasing of private lands and/or federal subsidies to firms to aid in their leasing efforts (Sizemore 1973). Another Federal report suggests that public leasing may improve production from private non-industrial lands (U.S. Department of Agriculture 1978).

#### LANDOWNER MOTIVATION

Landowners are attracted to leasing for several reasons. Perhaps the most appealing aspect of leasing is its simplicity. A lease can be as simple or as complex as either party desires. Most arrangements are relatively simple, requiring very little input from the landowner. This is important to a widow or an absentee landowner who is not able to oversee the management of the property. Because many properties are currently producing far less than their potential, professional management by a reputable forestry firm often appeals to the landowner.

The steady income flow provided by most lease agreements attracts many landowners — especially those who are accustomed to infrequent and unpredictable revenues from timber sales. To some owners, timber sales require an unpleasant personal involvement which can be avoided by a lease arrangement.

Leasing also offers some temporary advantages in estate planning. The owner of land under lease is assured the land will remain intact for the duration of the lease. Heirs cannot liquidate the tract for payment of estate taxes or for other reasons. This gives peace of mind to a few landowners. However, leasing offers no estate tax advantages.

In some oil-rich states, leasing permits an owner to relinquish control of land while retaining the mineral rights. In Louisiana, for example, a landowner cannot retain the mineral rights for longer than ten years after the sale of the land. An owner who wants to retain his mineral rights while disposing of the land, may do so by leasing the land under a long-term contract.

Some landowners enter lease agreements to guarantee a market for their forest products.<sup>1</sup> In areas where there is little or no competition for raw materials, landowners have difficulty in marketing their products. In this case, a lease provides the landowner a vehicle for creating a stable demand and price for his product.

An important reason for landowner interest in leasing is that many landowners are unwilling or unable to make the necessary investment to increase their forests' productivity. Since most land is managed below its biological potential, returns to the landowner have been traditionally low. Landowners do not realize the potential of their lands for producing income. Many owners do not have investment capital or the knowledge to borrow money. To these people, an offer by a firm for free improvement of their property and immediate income from a lease arrangement is appealing. As these lands are producing relatively low income, the firm need not offer a large sum to equal or exceed what the landowner is accustomed to receiving.

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<sup>1</sup> Personal communication with Dr. G. H. Weaver, Assistant Professor, Mississippi State University.



## TYPES OF AGREEMENT

Although the majority of agreements are written on an individual basis, several forms of long-term timber and forest land contracts are in general use. In a comprehensive study of leasing practices in the South, Siegel (1973) found that ninety percent of existing agreements could be placed into four broad categories: (1) lump-sum agreements, (2) cutting contracts, (3) land lease with timber purchase, and (4) lease of both land and timber.

### Lump-sum agreements

Although this category contains the largest number of existing leases, it represents less than three percent of the total area under lease. These contracts are among the older agreements in existence. They stipulate a lump-sum payment at the beginning of the lease covering land and timber for the lease duration. Some of the longest term agreements are in this category. The majority are in effect for from eighty to ninety-nine years. These agreements were among the first leases initiated. Very few of this type are written today. Changing economic conditions influence most landowners to consider a more sophisticated arrangement.

### Cutting contracts

There are 2.4 million acres now controlled by long-term cutting contracts, making this type of agreement the most important in terms of total acreage in the South. Under this arrangement, there is no lease of land or timber and therefore no lease payment. Payment is made only for timber removed from the tract. Firms assume the management responsibility in most cases. There is a substantial acreage where the landowner has retained management control. Generally payment is made on an as-cut basis at a prearranged price. Harvesting is usually limited to a volume equivalent to the timber growth. The original volume on the tract remains at contract expiration. The landowner may require a minimum annual payment which

serves as an advance payment on future removals.

#### Land lease with timber purchase

Over two million acres are leased under one of three variations of this category. The most important variation in terms of acreage is the land lease with payments for timber as cut on a volume basis. The firm assumes the management responsibility and timber removals are based on growth. Land rental payments are usually small. Most of the landowner compensation is derived from the payments for timber removals. Thus, the landowner's income depends on how well the lessee manages the land. In more recent agreements, the stumpage price is adjusted by an economic index. Generally, these agreements are considered to be among the more sophisticated types in use. A recent version of this type of agreement was reported by Greene (1979) and is designated as the Increment Contract. This version provides for no land rental payments. Quarterly payments are made for timber based on the firm's estimate of growth. If no timber is available for harvest, the payments are designated as a prepayment for future cutting and are credited to a cord credit account. At the end of the contract, any timber for which payment has been made but has not been cut reverts to the landowner. Proponents of the contract claim that it assures the landowner capital gains treatment on all income. This will be discussed later. Generally, the land is returned to the owner in a comparable condition as existed at contract initiation.

The second form of land lease and timber purchase provides for a land lease only, with an initial lump-sum purchase of standing timber. The landowner receives a land rental payment which is often adjusted by an economic index. No other payment is made for timber. Generally, the lessee is not required to leave any timber on the property at the end of the lease.

A third modification of this category involves only leasing bare land. Payment to the lessor is in the form of a land



rental. The lessee is required to plant the land. Less than two hundred thousand acres are managed under this type of lease. Industry is not actively seeking this type of agreement because of the long wait for any financial return.

#### Lease of both land and timber

Both land and timber are leased under this agreement. There is no initial purchase of timber nor any additional payment for timber removed. In most cases a volume comparable to the original volume is returned at the end of the agreement. In effect, the firm leases merely the growth. The early Union Bag agreements constitute a significant portion of these contracts. Over one-half million acres fall under this type of agreement. The average tract size is slightly over eighteen hundred acres.

#### LEASE CHARACTERISTICS

Siegel (1973) reported on the policy of firms towards the following characteristics of their leasing program.

##### Tract size

The minimum tract size considered for long-term contracts varies by firm. Almost half of the leasing firms have set no minimum acreage. These firms rate every tract on its own merit. Generally, tracts under five hundred acres are accepted only when they are near company mills, are highly productive sites, or are close to or contiguous to other company controlled units. Even so, over one-half of the contracts in existence are for holdings of less than five hundred acres.

##### Term of contract

The duration of most contracts varies from ten to ninety-nine years. Firms usually require time for at least one rotation and often prefer time for two or more. Smaller tracts tend to have longer contracts. Ninety-three percent of the contracts for eighty-one years or longer are on areas of less than five hundred acres. Firms believe that two or three

rotations are needed to justify managing these smaller tracts. The older leases, generally, are for longer time periods than are the most current agreements.

Recently landowners have experienced changing economic conditions and are more reluctant to enter into rigid long-term commitments. Therefore, very few new leases are for periods longer than forty-five years. Many leases are for shorter periods such as thirty years. The firm often has the option to renew the lease for one additional term.<sup>1</sup>

#### Timber types and merchantability requirements

Firms are primarily interested in lands stocked with pine. Approximately two-thirds of the land under lease in the South are classified as pine forest. Companies also lease pine-hardwood and upland hardwood stands, but these are usually converted to pine stands. A few hardwood manufacturing firms lease only hardwood stands.

Firms prefer lands which already support some merchantable timber. Over twenty-seven percent of the firms will not lease land which does not support merchantable timber. Other firms will accept premerchantable stands if they are plantations. The remaining firms will lease premerchantable stands with desirable stocking, species composition, and site quality.

#### Forest management on lease lands

Almost forty percent of the firms manage their lease lands the same as their fee lands. Another one-third, primarily pulp and paper companies, manage lease lands more intensively than their own. They strive to maximize revenue from the land during the short period of management control. Therefore, firms manage timber on shorter rotations on contract lands. All firms undertake some regeneration on lease lands. Species, cultural practices, and rotation length vary to meet the mill requirements of the leasing firm.

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<sup>1</sup> Personal communication with Richard Allen, Regional Vice-President, (retired), Weyerhaeuser Co.



### Financial considerations

In the majority of existing lease arrangements, all management expenses are borne by the lessee. In some cutting contracts the landowner retains management responsibility. Some cost-share on a 50%/50% basis.

Most early agreements did not provide a rental payment adjustment to reflect changing economic conditions. Landowners now expect future payments to be related to some kind of index. For land and timber rental payments, the Wholesale Price Index — All Commodities is the most commonly used index. Adjustments generally occur at fixed time intervals and/or for deviations of five percent or more in an index. Other agreements stipulate a continual adjustment.

Stumpage payments in pay-as-cut contracts are also usually adjusted by an index. A variety of indicators are used for this purpose. Often several indices are used in combination. Commonly used indices are:

The Wholesale Price Index — All Commodities  
 The All Lumber Index  
Random Lengths  
Timber Market South  
Louisiana Timber Products Quarterly Market Report

In many pay-as-cut agreements, all timber removals are converted to a cord volume for payment. Conversion factors differ between firms and within contracts.

Payment of taxes differs among firms. Most agreements require the lessee to pay all severance taxes, while ad valorem taxes are paid in a variety of ways. The majority of firms pay all ad valorem taxes, but many either share the tax burden or assume no responsibility for taxes.

### PROBLEMS

Long-term leases and cutting contracts are relationships between two parties with inherently differing objectives.

Both parties desire maximum returns with minimum costs. Each party, therefore, enters into an agreement knowing that some concessions must be granted in order to complete the agreement. Landowners, however, are unable to assess accurately the true cost of their commitments and concessions. Many landowners were disadvantaged in the past by their inability to predict accurately the economic and technological changes that could occur during the term of their lease agreements. Although the future is uncertain, firms usually are in a significantly stronger position to employ experts knowledgeable in economic and technological forecasting. Firms know their own future plans and the resulting effects on the market in their immediate wood-drawing area.

Additionally, the forest industry has accumulated knowledge and a recognized capability to more accurately determine the income potential of tracts under consideration. The typical landowner, however, is not knowledgeable in forestry matters and is usually unaware of his land's maximum income potential. As an uninformed party, the landowner, therefore, is not in a position to properly evaluate a firm's lease offer. Consequently, it is understandable that many landowners express dissatisfaction or even regret after entering into these long-term obligations.

Landowners voice numerous criticisms concerning their lease agreements. The basic complaint is that landowners believe compensation is insufficient for the use of their land. Some estimates indicate that landowners are losing from one-third to two-thirds of the potential net income from their leased lands (Bradley 1967).

Landowner income is impacted by: (1) loss of capital gains treatment, (2) poor utilization, (3) improper reporting, (4) management goals, and (5) pricing mechanisms.

#### Loss of capital gains treatment

Capital gains treatment for timber income was provided for in 1939 with the enactment of Section 117 (k) (2) of the



Internal Revenue Code. "It was intended to promote a continuing timber industry by giving a tax benefit to the timber operator in the year in which he realized the fruits of many years of labor, no matter in what manner he sold his trees."<sup>1</sup> In 1954, Section 117 (k) (2) was amended and re-enacted in Section 631(b) of the Internal Revenue Code.

Section 631(b) provides a capital gain advantage to the taxpayers who sell timber in their ordinary course of business, provided that certain conditions are met. A landowner who makes frequent sales, as is usually the case in lease arrangements, is considered as selling timber in the ordinary course of business. The 631(b) provisions to be satisfied are that the owner must possess the timber for at least twelve months<sup>2</sup> and must retain an economic interest in the standing timber until the date of disposal. When written, however, 631(b) offered no definition or guidelines for retention of economic interest or for date of disposal. Subsequently, this uncertainty resulted in many tax disputes between the Internal Revenue Service (IRS) and taxpayers.

In 1959, the meaning of "retention of economic interest" was sharply restricted by the Tax Court.<sup>3</sup> The case involved a Union Bag Corporation lease where the lessee paid the landowner a fixed annual rental for certain privileges including the cumulative right to remove up to a specified maximum volume of trees per year. The Court looked to Section 1.611-1(b)(1) of the Treasury Regulations on Income Tax which states:

an economic interest is possessed in every case in which the taxpayer has acquired by investment any interest in...standing timber and secures, by any form of legal relationship, income derived from the...severance of the timber to which he must look for a return of his capital.

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<sup>1</sup> United States v. Brown Wood Preserving Co., 275 F2d 525.

<sup>2</sup> Changed from six months in the 1976 Tax Reform Act.

<sup>3</sup> Estate of James M. Lawton, 33 T.C. 47 (1959).

The Court ruled that since the taxpayer "was to be paid each year regardless of whether or not any of the timber involved was cut or removed", he did not retain an economic interest and therefore did not qualify for capital gains treatment under 631(b). The Court went on to cite a specific example of how a contract could be worded to assure capital gains treatment to the lessor. Such a contract should require the timber to be sold on the stump, be cut by the vendee, measured after cut, and payment made to the owner on a per unit cut basis (Fendig 1966).

In 1962, Revenue Rulings 62-81 and 62-82 were adopted.<sup>1</sup> Revenue Ruling 62-81 states that where a landowner is assured a fixed return, and the lessee a fixed obligation, neither of which is dependent upon severance of timber, the landowner does not possess a retained economic interest in timber. Companion Ruling 62-82 applies to leases where fixed annual payments include payment for timber as well as land rental. Ruling 62-82 affords the landowner capital gains treatment on income up to an amount equal to the value of standing timber present at the contract initiation.

The next major decision came in 1963 with the settlement of Union Bag—Camp Paper Corporation v. United States, 325F(2d) 730. The position of the IRS was that Union Bag—Camp Paper Corporation should capitalize the fixed annual payments to landowners while this corporation believed that it should be allowed to expense these costs as an ordinary operating cost. The Court found in favor of the corporation, and two important questions were resolved. First, companies are allowed to deduct as an ordinary operating expense the annual payments made for the right to cut the cumulative annual growth of timber on lease lands. Secondly, Union Bag—Camp Paper Corporation is entitled to capital gains upon their disposal of all timber up to cumulative annual growth.

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<sup>1</sup> 1962-1 Cumulative Bulletin No. 153.



From these cases and rulings, the following general rule is presented. Generally, the lessee can deduct payments as an ordinary business expense. The payments therefore are considered as ordinary income to the landowner whenever these elements are present in a lease:

1. The lessee should have possessory interest in the land such as management responsibility.
2. Cutting should be limited to annual growth or all standing timber should be purchased at the onset.
3. Payments should be payable in any event whether any timber is ever cut or is even ever available to cut on the land (Landis 1966).

An analysis of the increment contract follows. The increment contract (Greene 1979) is purported to allow the landowner to retain a capital gains advantage from all lease proceeds. The increment contract is basically a newer version of the St. Regis Timber Purchase Agreement developed in 1947. It is a long-term agreement wherein the lessee manages the lessor's land and pays for timber removals. There are no annual rental payments. The stumpage price is fixed at the beginning of the contract and is adjusted by the Wholesale Price Index — All Commodities. In the early years of the contract period, young stands are not ready for any removals. Therefore, the firm makes annual payments to the landowner for sixty-five to seventy-five percent of the estimated mean annual growth. This purchased but not yet harvested growth is credited to a cord credit account. In later years, when harvests are expected to exceed mean annual growth, the excess will be debited to the cord credit account. Since the increment payments are for something less than the land's estimated productive capacity, the landowner must wait until a sufficiently large harvest is made before he can receive the balance of his income. Proponents of this arrangement believe that this provision gives the landowner a retention of economic interest in the timber. The contract even states that the landowner retains an interest in, as well as rights and title to the timber until it is cut. The firm's right to the timber

terminates with the contract, regardless of any balance remaining in the cord credit account.

Although this contract purports to provide the lessors with a capital gains treatment on income, this contract is yet untested and proven in a tax court. The St. Regis Timber Purchase Agreement (TPA) is the predecessor of the increment contract. In the early 1960's many contracts lost their capital gain advantage. The TPA was considered by many experts to be the exception (Jones 1965). In 1968, however, the TPA failed the Court's test.<sup>1</sup> The timber purchase agreement is almost identical to the present day increment contract.

The Tax Court ruled that in the TPA the landowner did not retain an economic interest in the standing timber. The controlling principle was stated in *Dyal v. U.S.*:

It is essential that the consideration for the transaction, whether payable in cash or in kind, be contingent upon severance of the timber and payable to the owner solely out of the proceeds of the natural resource itself.<sup>2</sup>

The Court ruled that "... the agreement did not obligate the St. Regis people to exercise their backlog privilege." Thus, it is theoretically possible for the landowner to receive payments without a single tree ever being cut. This possibility clearly demonstrated to the Court that payments were not contingent upon the severance of timber, and therefore economic interest was not retained.

The increment contract is now under the scrutiny of the Internal Revenue Service, and the elements contributing to the downfall of the TPA are still present. The IRS may soon intercede and disallow any capital gains advantage from the increment contract.

Although many contracts were designed to provide a tax advantage to the landowner, the IRS has almost invariably ruled against him. The only certain way for a landowner to receive a capital gain advantage is under a long term agreement in which

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<sup>1</sup> Crosby, Jr. et al v. U.S., 68-2 USTC 9571.

<sup>2</sup> Dyal v. U.S., 342 F.2d 248.



he is to sell on a pay-as-cut basis with payments being made only at the time of removal.

Pricing may be based either on a predetermined indexed price or on a percentage of delivered or end-product value. There is no guarantee this method will remain acceptable. The point can be emphatically stated as follows. In the past, the IRS has been vague regarding how a landowner could retain a capital gain advantage, and regulations have been strictly interpreted. There is no way that a landowner can be assured of an unchanging IRS position towards his tax situation. Since tax policy may change, the landowner should hesitate to enter a rigid, long-term commitment. The IRS will continually test the validity of the contract to qualify for 631 (b) gains throughout the term of the contract.<sup>1</sup>

A solution to this problem does exist. Industry is often willing to write a contract providing the landowner a tax advantage. Therefore, industry should be willing to renegotiate a contract in the event that the IRS changes its position. The prudent landowner should require that his contract be flexible enough to equitably handle any complications that may arise in the future.

#### Poor utilization

In agreements wherein a landowner receives payment based upon removals, his income depends on how well the firm utilizes his timber. Many landowners indicate they are losing potential income through the firm's failure to properly utilize their material.

A primary complaint is that firms do not sort for quality products. For example, pulp and paper manufacturers are accused of using sawlog-sized trees in their paper-making process. Since cordwood prices are significantly lower than sawlog or veneer prices, a landowner's income is substantially reduced

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<sup>1</sup> Personal communication with Ed Champagne, Valuation Engineer, Internal Revenue Service, Atlanta, Ga.

when quality timber is misutilized in such a manner. The same is true in slash and longleaf stands if stems suitable for poles and pilings are harvested as cordwood.

Landowners entering long-term agreements to assure themselves a marketing outlet often find themselves able to market only those products that the lessee uses in its primary manufacture. Changing technology and demand may result in a leasing firm changing its product line. For example, some firms that once used both pine and hardwood now utilize only pine. The lessor is then unable to market his hardwood.

Other landowners complain of excessive waste in the timber harvest. Large volumes left in tree tops is a common complaint. Others complain of poorly supervised cutting crews who steal wood by hauling to non-company wood yards.

Under the current system of payment on a pay-as-cut basis for delivered wood, all losses from misutilization, logging waste, and timber theft are passed directly to the landowner. One solution to this problem is to require that landowner payments be made on a lump-sum basis for estimated standing volume. Such an estimate could be made by a consulting forester at the landowner's expense. If payments are made on this basis, the landowner will not suffer from misutilization, waste, or theft. The employment of a consultant would be a direct expense to the landowner. A consultant's fee is approximately five to seven percent of the value of the total volume. If estimated losses from misutilization, theft, and waste exceed this amount, then use of a consultant is justified. Firms may not be receptive to this arrangement, but landowners should consider it before entering into an agreement.

One disadvantage of this procedure is that lump-sum sales by landowners actively engaged in selling timber do not qualify for capital gains tax treatment. If contract terms already preclude capital gain treatment, then this would not pose an additional problem.



### Improper reporting

When payments are made on a pay-as-cut basis, some landowners accuse firms of not reporting accurately the removals. While a landowner may negotiate with a company representative who is known to be trustworthy, there is no guarantee this employee will continue to oversee the tract's management. During a sixty-year lease, numerous company representatives will be in charge of the same contract land. Although it is unlikely that improper reporting is intentional, there are discrepancies between actual removals and reported removals. For example, many pay-as-cut contracts require the firm to inform the landowner of areas proposed for cutting, and to specify these areas when payments are made. Landowner inspections sometimes disclose areas cut where there are no records of such harvesting activities. This problem is more prevalent in contracts covering very large acreages where numerous operational units are involved.

To prevent losses from poor reporting, the landowner should require and keep good records of removals. The lessee must be required to notify the landowner of any proposed cuttings so that the operations can be monitored.

### Type of management

In pay-as-cut agreements, the landowner's income depends entirely on how well the firm manages the land. Most of these contracts require the firm to implement "good forest practices", consistent with those practices on privately owned timber lands. "Good forest practices", however, are hard to qualify and differ depending on the goals of the forest manager. An agreement with a pulp and paper manufacturer, for example, will result in fiber production. Historically, leased lands are managed on shorter rotations (Siegel 1973) than are fee lands of the same firm. Therefore, the landowner should not expect to receive the higher sawtimber prices when his land produces only lower valued wood fiber. If a contract concedes high prices for sawtimber, when no sawtimber is grown, the landowner gains

nothing.

Some landowners complain that management of contract lands takes lower priority to fee lands and suffers during times of labor and equipment shortages. Sometimes, timber on contract lands is liquidated prematurely during periods of wood shortage when mill inventories are low.<sup>1</sup> While the above practices are detrimental to the landowner, they could be categorized as "good forest practices".

### Pricing mechanisms

Landowners indicate that inadequate contract pricing mechanisms contribute to insufficient compensation. Early leases made no provision for adjusting future payments to accommodate the effects of price changes. Some landowners received fixed annual rentals of as little as one dollar per acre over a ninety-nine year lease. As landowners became more sophisticated, they required that future payments be adjusted to reflect economic changes. The Wholesale Price Index — All Commodities is the most commonly used index for adjusting land rental payments, and is frequently used to adjust stumpage prices. The Wholesale Price Index — All Commodities only helps to hedge against inflation and deflation. It does not reflect the real price increases of timber over time.

Stumpage prices have risen more rapidly in recent decades than have prices of lumber and other processed timber products (Hotvedt and Tedder 1978). As the forest resource base becomes more limiting, stumpage is expected to command a greater percentile of the finished product value (Bradley 1967). Therefore, long-term leases and cutting contracts adjusted by only an inflationary index will be economically advantageous to the lessee and disadvantageous to the landowner. Prices adjusted by an index which more accurately reflects changes in stumpage values are more equitable. Several indices are available from

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<sup>1</sup> Personal communication with Wesley Rickard, Forest Economist.



public agencies and private organizations.

The Bureau of Labor Statistics produces three indices which may be appropriate:

Southern Pine Lumber, Index #081102  
Southern Pine Plywood, Index #083102  
Wood Pulp, Index #0911

More localized indices are published through the Cooperative Extension Service and state forestry agencies in many states. The United States Forest Service publishes useful bulletins such as Pulpwood Prices in the Southeast. Random Lengths and Timber Market South are privately published market reports.

Hotvedt and Tedder (1977) reported on the use of the Wholesale Price Index — All Commodities in determining future stumpage prices under long-term leases. They compared the prices derived by the wholesale price indexes for all commodities, softwood lumber, and southern pine lumber with actual observed stumpage prices in Louisiana. The three indexes all yielded significantly lower stumpage prices than actual prices in the Louisiana stumpage market. The All Commodities Index was the lowest followed by the Southern Pine Lumber Index. The Hotvedt and Tedder study did not identify one index as being more appropriate than another. It did point out that inequities exist. This substantiates Guttenberg's (1972) contention that the pricing mechanism for timber leases needs to be periodically re-examined. The contract should be sufficiently flexible to accommodate any modifications necessary to assure that the index remains reasonable for both parties.

In many contracts, pricing is based on a single unit of volume such as the cord, and all removals are converted to cord volumes. For example, some contracts specify that, for payment purposes, one thousand board feet of sawtimber is equivalent in value to five cords of pulpwood. For such a fixed conversion to be equitable, one must assume the relationship between pulpwood prices and sawtimber prices remains constant. This is not the case. Sawtimber prices have increased at a faster rate than pulpwood prices (U.S. Forest Service 1973).

Therefore, landowners are receiving proportionately less for their sawtimber under such an agreement.

Problems arise when new products and/or processes develop from economic and technological changes. For example, when a chip-n-saw operation begins, it must be determined if stumpage is to be paid on the basis of pulpwood or sawtimber. Eventually a new conversion factor should be negotiated in this situation. The landowner may be at a disadvantage when assessing the appropriateness of the proposed factor.

#### Other problem areas

Aside from providing low income, landowners cite other undesirable features of leasing. Foremost, the landowner relinquishes virtually all of his ownership rights upon entering a long-term lease. Land and timber constitute a sizable asset to landowners. In leasing, the fee holder sells the privileges of this asset. No longer is the owner able to raise immediate income from the proceeds of a timber or land sale should a personal emergency arise. A landowner entering a thirty to sixty year lease is practically selling the land for a major portion of his lifetime.

Landowner liability for actions of the lessee is a potential problem area. If not careful, the landowner may find himself in court if the lessee violates public pollution or harvesting acts or causes damage to adjoining landowners. This is true when the landowner participates in any of the management decisions for the tract. The landowner should make certain that the contract specifically releases him from any such liability. Also, he should report any violations.

The condition of the property at the termination of the lease is another potential problem area. Most agreements stipulate the tract will be returned in at least as good condition as existed at contract initiation. These tracts are generally undermanaged and produce far below potential before being leased. Returned in this condition, there is



little benefit of improved management by industry.

Leases often require lands to be returned site-prepared and planted. This might appear to be an acceptable or even desirable solution, but it has definite shortcomings. If recently planted stands are returned to the landowner, he must wait almost twenty years for his forest to produce income. If the tract is larger than a few hundred acres, the owner will have some severe cash flow and tax problems resulting from one large investment maturing at the same time. Additionally, he will have a tremendous problem in balancing his silvicultural workload.

A better solution than requiring the return of clearcut and/or planted stands is the return of uniformly distributed even-aged stands. These stands should be normally stocked. A more manageable workload and cash flow can be attained in this manner.

Returning stands in this condition will represent a substantial expense to industry. The added cost will be passed on to the lessor in the form of reduced lease payments. The benefit of receiving an on-going, well-managed forest should be worth the initial decrease in revenue.

#### ALTERNATIVES TO LEASING

There are alternatives other than leasing to help the non-forester landowner increase the productivity and income from his land. Some may require significantly more effort from the landowner. In return he will receive the benefit of the unrestricted use of his land, and should net more income than is usually derived through leasing. Several alternatives will be briefly discussed. They are: (1) use of a consulting forester, (2) public assistance, (3) informal lease agreements, (4) landowner cooperatives, and (5) corporate trusteeships. A hypothetical case study will follow.

### Consulting forester

Consulting foresters are available to assist landowners in all facets of forest land management. Landowners do not need a knowledge of forestry concepts to work with a consultant. Services provided include: appraisals, preparation and implementation of forest management plans, silvicultural work including tree planting and timber stand improvement, assistance in income tax and estate planning matters, and marketing and timber sale assistance.

Prices vary among consultants depending on ability, reputation, and the services they provide. Estimated fees for inventories and management plans range from \$1.50 and \$2.50 per acre, depending on sampling intensity and the desired information. Timber sale preparation and administration typically costs from five to ten percent of gross sale revenue. Miscellaneous services are usually provided on a daily basis for from one hundred-fifty dollars to three hundred dollars per day.

Generally, anyone owning more than five hundred acres of forest land would benefit from retaining a consultant to oversee the land's management. Owners of smaller acreages need the services of a consultant only occasionally for infrequent operations such as timber sales and appraisals. Landowners with very large forest land holdings (ten thousand or more acres) may choose to hire a forester on a full time basis.

Consulting foresters also have their problems and limitations. Some consultants are nearing retirement age or may be in semi-retirement. They could not be expected to be available for longer than ten to twenty years. This is a handicap to projects requiring continuity of management for long periods of time. A qualified younger forester could provide more continuous management in these cases. Also there are several incorporated consulting firms that have been operating in the South for several generations. Consultants are no more immune to dishonesty or erroneous judgement than are industry foresters. Landowners must give careful consideration to choosing only



reputable and conscientious foresters.

### Public assistance

Federal and State government agencies offer assistance to the forest landowner. The U.S. Forest Service's State and private Division provides useful information to landowners. Individual assistance is provided by state forestry agencies and the Cooperative Extension Service. These state agencies offer cooperative forest management assistance whereby an agency forester will visit the property and prepare a written management plan. This is often a free service. Also, many agencies offer services such as tree planting, timber stand improvement, and prescribed burning on a fee basis.

Cost-sharing assistance is available to landowners. In 1973, Congress authorized the Forestry Incentives Program (FIP) to share the cost of tree planting and timber stand improvement. This program pays for up to seventy-five percent of approved forestry practices. Technically, the landowner can receive up to ten thousand dollars per year in cost-sharing assistance. Budget limitations, however, seldom allow for payments this large. The primary eligibility requirement is that the private landowner shall own no more than a thousand acres of eligible forest land.

The Federal Agricultural Conservation Program (ACP) basically provides the same assistance as FIP. Landowners should contact their local Agricultural Stabilization and Conservation Service (ASCS) office to participate in either FIP or ACP programs.

Mississippi, Virginia, and North Carolina now offer cost sharing programs in addition to the federal programs (Society of American Foresters Task Force 1979). Mississippi's Forest Resource Development Program (FRDP) channels funds from a timber severance tax into a cost-sharing fund. The landowner can receive up to three thousand dollars per year under this program. FRDP will pay up to seventy-five percent of the cost

of approved practices. There is no maximum acreage limitation to eligibility. The Mississippi Forestry Commission administers this program.

Relying solely upon public foresters for management assistance has one major disadvantage. These agencies are usually quite limited on manpower and money. There is often a long waiting list delaying many types of assistance. The landowner with two hundred or three hundred acres could be well served by public agency foresters when available. The larger tracts, however, usually require more time than these foresters can schedule. Agencies are also restricted in the services they can provide. Most do not become actively involved in timber sales or appraisals. Generally, public foresters do not become involved in an individual landowner's tax and estate planning matters. However, the consulting forester can be employed to provide advice in these more specialized areas, while public foresters can be utilized for general forest management assistance.

#### Informal lease agreements

Many firms in forest industry are active in soliciting informal lease agreements with landowners. Most of these agreements offer free or reduced cost management advice to landowners. They will also provide needed silvicultural work such as tree planting at the company's cost. Informal agreements can provide landowners with sound forestry advice. Landowners also may benefit from the economies of size that large companies enjoy.

Pleasanton (1975) reported on the assistance programs of eleven major companies in the South. These companies offer the following free services: management planning, timber marking, and marketing forest products that the company did not wish to buy. Most firms offer a timber inventory as a free service. All firms provide tree planting at cost and usually offer timber stand improvement. Other services provided include boundary line maintenance, fire control, insect and disease control, and timber theft surveillance.



The landowner must grant to the company first refusal rights on timber offered for sale in return for these services. This means that after the owner receives bids for his timber, the company has the right to match the highest bid. The company does not have to outbid the competitors nor does it have to purchase the timber. Many agreements also extend first refusal rights to purchase the land should the landowner decide to sell it. (Pleasanton 1975).

Some companies maintain that these agreements are losing money, yet all firms are actively expanding their assistance programs. They justify their involvement in these arrangements with the following two reasons. Improving the output from non-industrial private lands will help to assure a future wood supply. If shortages are avoided then wood prices will not skyrocket and operations will not be disrupted. Secondly, improved public relations are cited as a benefit. Through donating assistance to the private landowners, firms hope to create a favorable attitude in the community in which they hold land. This is hoped to lessen the threat of adverse taxation and arson-started woods fires (Whaley and Guttenberg 1962).

Some agreements are for specified terms up to ten years. Other agreements may be cancelled by either party giving sixty to ninety days notice.

Informal agreements are well accepted by landowners, but problems do exist. The concept of first refusal causes much controversy. Many experts maintain that it eliminates competition, especially in markets with limited competition. Preparing a bid for timber sale is costly. A prospective buyer will not spend time and money to prepare a realistic bid if he believes his bid will only serve to set the bid price for someone else. Some landowners fear collusion between companies involved in landowner assistance programs. There are rumors that some companies have agreed not to bid on each

other's lands held under these informal agreements. Although such practices are illegal under antitrust and unrestricted free trade legislation, the potential for this problem exists.

Another area of complaint is that work promised is often never performed. Companies may obligate themselves but be unable to accomplish the work as planned. Administering these informal agreements is often a duty in addition to a company forester's full-time company commitments. If time, labor, and material shortages develop, company needs are first satisfied. Only after company demands are met is attention focused towards private landowners. This situation is not peculiar to any individual company, but rather varies between districts according to workload. Some company districts do an excellent job for landowners. Other perhaps busier districts do not fulfill all of their obligations. The landowner should inquire about the past performance of the firm in his general locality before entering any agreement with them.

#### Landowner cooperatives

For over sixty years, forest owners have formed cooperatives and aggregates to achieve a common goal. By combining their land, landowners enjoy benefits of economies of size common to larger operations. They enjoy an improved bargaining position for dealing with forest industry. Southern cooperatives have organized primarily to create an improved marketing outlet for their forest products. To achieve this goal, groups of landowners first assess their capability to provide a stable supply of wood. The landowner is often required to commit his timber to be marketed only through the cooperative. Next, the cooperative approaches prospective buyers and secures a market for their wood. Funds are raised to equip a woodyard and to hire a forester and administrator to oversee operations. The forester prepares timber sales and supervises cutting activities.

Cooperatives offer the landowner two advantages. Usually he receives more money for his products than is available in

the open market. Secondly, he has the benefit of a forester's supervision of harvesting operations.

The primary shortcoming of landowner cooperatives is that most last only ten to twenty years before disbanding. Dempsey (1968) cites four reasons for this characteristic short life:

- (1) lack of adequate volume of business
- (2) inadequate support from members
- (3) poor management
- (4) insufficient capital for initial and working investments

Nonetheless, many cooperatives serve their purpose well.

Another shortcoming of cooperatives involves tract size. Successful cooperatives find it economically unfeasible to manage and market forest products from ownerships of less than three hundred acres. Seventy-three percent of the two hundred ninety-six million acres of nonindustrial private forest land is in average ownerships of approximately seventy acres. Therefore, cooperatives will have limited application unless a means can be found to aggregate these smaller tracts into larger units (U.S. Department of Agriculture 1978).

The services provided by cooperatives are limited. A marketing cooperative is not capable of providing the management services necessary to the successful operation of the forest. This can be overcome, however, by utilizing the services of a public or private forester in conjunction with the cooperative's forester.

There is a renewed interest in landowner cooperatives as a means for increasing production from nonindustrial lands. The Department of Agriculture is currently studying existing cooperatives to find the key to their successful operation.<sup>1</sup> Landowners interested in joining a cooperative should ask prominent forest owners and foresters in their area for local information.

#### Corporate trusteeship

Corporate trusteeships are especially useful in forest

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<sup>1</sup> Personal communication with Dr. James E. Moak, Prof. Mississippi State University.



estate planning and forest management. Accounting firms, banks, and consulting forestry firms offer a wide variety of services to landowners. The combination of the accountants, lawyers, and foresters employed by these organizations provide excellent teamwork in forest land administration. Lawyers and accountants have expertise in financial matters and estate planning, while foresters manage on-the-ground activities.

Estate planning and forest management are often incompatible. Powell and Adair (1971) list the following reasons for this conflict:

A timber rotation is multigenerational.

The estate tax is irregular. The irregular timing of death complicates planning designed to have liquid assets available when they are needed.

Executors have looked upon timber as a resource for providing liquidity for the gross estate rather than a crop to be protected for harvest.

Heirs have looked upon timber as a windfall rather than a family investment.

The majority of private timberlands are understocked; thus, while producing low incomes, they may represent much wealth in a tax appraisal because of large land areas involved.

American tradition favors division of property between heirs, resulting in small uneconomical units of forest ownership.

To avoid such conflict, the landowner can form a trust and be assured that forest management on his tract will not be disrupted upon his death. Estate taxes can be avoided, also, for several generations. Further, the landowner is then assured his property will not be sold and divided for payment of estate taxes. Trusts prevent heirs disinterested in forestry from squandering the property. Some landowners enter into long-term leases to assure that their property is at least briefly perpetuated as a forest entity (Siegel and Guttenberg 1968). A better alternative to that is to create a trust.

Powell and Adair (1971) recommend that the landowner create an irrevocable inter vivos trust. This trust is created and effected during the property owner's lifetime. It cannot be cancelled after it is created. This type of trust offers the greatest savings in estate taxes. Landowners who want a more flexible agreement can create a revocable inter vivos trust or a testamentary trust that can be cancelled.

A substantial estate tax advantage may be gained through the creation of an irrevocable inter vivos trust. The value of this trust for estate tax purposes is the value at the date the trust is created. With rapidly increasing values of land and timber, the ability to freeze the value of an asset is an important feature. Long-term leasing, on the other hand, offers no tax advantage. With leases, not only is the current value of the land brought into the taxable estate but also the present value of future lease rental payments.

Revocable and testamentary trusts offer some definite advantages in both estate planning and forest management. However, they do not effect a savings in estate taxes. As with leases, the value at the date of death is used in calculating estate taxes.

A major disadvantage of a trust may be its cost.<sup>1</sup> Fees for administration are usually structured towards either a percentage of total asset worth and/or a percentage of revenue from the land. Fee percentages generally decrease as the tract size increases. Even so, the benefits of corporate trusteeship may be well worth the cost, especially to older landowners with large estates.

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<sup>1</sup> Personal communication with James A. Bryant, Assistant Professor, Mississippi State University.

### Hypothetical case study

A landowner in Mississippi with 640 acres of forest land is approached by a pulp and paper company representative in regard to leasing his land. The owner has not practiced forest management on the tract. He has been considering employing a consulting forester to help manage it.

To evaluate his options, the landowner decides to use a discounted cash flow technique called the net present value method. This technique takes into account the time value of money. The net present value is the present value of future net incomes, discounted at the cost of capital, less the initial cost of the investment. The alternative with the highest net present value will be selected.

The landowner considers three options: leasing agreement Number 1, leasing agreement Number 2, and retained management utilizing a consulting forester.

The 640 acre tract is suited to growing loblolly pine. The land is currently stocked with the following volumes:

<u>Species/Product</u>	<u>Volume/Acre</u>	<u>Annual Growth</u>	<u>Total Volume</u>
Pine pulpwood	5 cords	4%	3200 cords
Hardwood pulpwood	6 cords	5%	3840 cords
Pine sawtimber	1.6 MBF	4%	1024 MBF
Hardwood sawtimber	1.4 MBF	3%	896 MBF

Note: pine growth is assumed to increase 7% following a hardwood removal.

Timber prices are expected to exhibit a real price increase of 2 percent per year. Inflationary price changes are ignored because the leasing alternatives provide price adjustments equal to inflation. The present and estimated future stumpage values are presented in Table 1. The landowner is taxed on income at a rate of 40 percent. He has no basis for depletion on the existing stand. The landowner selects the real rate of 4 percent above inflation as his cost of capital.



Table 1. Present and Future Stumpage Prices Compounded at a Real Rate of 2 Percent.

Species/Product	(1980) -	Year -	(2020)
Pine sawtimber	\$190 per MBF		\$419.53 per MBF
Hardwood sawtimber	45 per MBF		99.36 per MBF
Pine pulpwood	10 per cord		22.08 per cord
Hardwood pulpwood	5 per cord		11.04 per cord

Each alternative is evaluated using discounted cash flow techniques. Estimated after-tax cash flows and net present values are presented for each alternative. The lease options have a sixty year duration. The retained management alternative is evaluated over a forty year period. Investment alternatives with unequal lives cannot be compared solely on the basis of their net present values. They can be compared if net present values are converted to equivalent annual incomes (EAI). EAI is the amount of an annual payment that will pay off the net present value of an asset during its lifetime. Equivalent annual incomes are calculated for each alternative.

#### Lease No. 1

Lease No. 1 is a sixty year agreement. It involves the initial lump sum purchase of all standing timber and an annual rental of ten dollars per acre. The rental is to be adjusted by the Wholesale Price Index - All Commodities. The lessee pays all management fees, property taxes, and severance taxes. The owner is eligible for capital gains benefit only on the timber sold at the onset of the lease. Therefore only 40 percent of his gain on timber is taxable. The rental payments are taxed as ordinary income. The cash flow generated by this lease is presented in Table 2.

Table 2. Cash Flow for Land Lease No. 1 Coupled with Initial Purchase of Standing Timber.

Year	Activity	Cost	Income	Net Income After Tax
1980	Timber sale	0	\$286,080	\$240,307
1980- to 2040	Present value of Annual rental*	0	\$144,790	\$ 86,874

Net present value:  
\$86,874.00

Equivalent annual income:  
\$ 3,840.00

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\* Represents net present value of \$10/acre/year for 60 years discounted at 4%.

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### Lease No. 2

Lease No. 2 consists of the initial purchase of all standing timber and the purchase of all future growth over a sixty year lease. Payments for future removals are based on growth in cubic foot volumes. The price is five dollars per 100 cubic feet, to be adjusted by the Wholesale Price Index — All Commodities.

A twenty-nine year rotation is selected for analysis. Twenty-nine years approximates the maximum fiber volume rotation for this site. Two rotations are expected during the sixty year lease. Computer stand simulation estimates predict that the land is capable of producing 5,888 cubic feet per acre over a twenty-nine year rotation. This represents a mean annual growth of 196.3 cubic feet per acre. Annual payments will be made based on this average growth. Payments will serve as prepayment for future cutting. The firm pays all management costs and the property and severance taxes. The land-

owner is eligible for capital gains benefit only on the initial sale of timber. Payments for growth are considered as ordinary income by the IRS. The cash flow is presented in Table 3.

Table 3. Cash Flow Diagram of Lease No. 2.

Year	Activity	Cost	Income	Net Income After Tax
1980	Timber sale	0	\$286,080	\$240,307
1980 to 2040	Present value of Annual payments for removals*	0	\$142,141	\$ 85,273
Net present value:				\$85,273
Equivalent annual income:				\$ 3,769

\* The present value of annual payments for growth based on 196.3 cu. ft./acre/year for 640 acres over 60 yrs. The discount rate is 4%.

#### Retained management utilizing a consultant

The third option involves the utilization of a qualified consulting forester. The landowner retains management control of his land. Management strategy dictates that the land be divided into four operating units of 160 acres each. These are labeled areas A, B, C and D. This is done for two reasons: (1) to avoid exceeding the annual maximum cost-share allowance under the cost-sharing programs, and (2) to stagger the workload and help stabilize the cash flow.

Each unit will be clearcut and planted to pine beginning with Area A. The other areas will follow at three year



intervals. Estimated plantation yields generated by computer simulation (Daniels and Burkhardt 1975) are presented in Table 4. While these volumes may appear to be high, they represent a mean annual growth of approximately 2.2 cords per acre.

Table 4. Estimated Removals for a 40 Year Rotation of Loblolly Pine Planted on Cutover, Site-Prepared Land at a 6' X 10' Spacing. Site Index 60 @ 25 Yrs.

Age	DBH Inches	Height Feet	Number of Stems/Acre	Volume/Acre
18	5	41	94	2.7 cords
	6	42	80	3.6 cords
	7	44	80	5.3 cords
	8	46	44	4.0 cords
				<u>15.6 cords (Total)</u>
25	11	58	15	.525 MBF
	12	61	58	3.016 MBF
				<u>3.541 MBF (Total)</u>
32	15	71	22	3.102 MBF
	16	67	7	1.127 MBF
				<u>4.229 MBF (Total)</u>
40	22	78	22	10.934 MBF
	25	79	15	10.650 MBF
				<u>21.584 MBF (Total)</u>

Site preparation consists of individual stem injection with herbicide followed with prescribed fire. Plantations will be thinned at ages 18, 25, and 32 with a final harvest at age 40 years. Stands will be prescribed burned two times during the rotation. Costs for these activities are listed in Table 5. The cost of site preparation, tree planting, and burning is assumed to increase at an annual rate of 2 percent above inflation. Property taxes and management fees will increase at the same rate as inflation. The cost of timber sales remains a percentage of gross income.

Table 5. Costs of Selected Forestry Practices With and Without Cost-sharing Assistance.

Activity	Cost Per Acre	Landowner Cost With Incentive Programs
Site preparation (injection)	\$45	\$11.25 acre
Burning (site preparation)	4	1.00 "
Tree planting	50	17.00 "
Burning (understory control)	3	3.00 "
Property taxes, mgt. fees	2	2.00 "
Timber sales	10% thinning income 5% clearcut income	

The cash flow as depicted in Table 6 assumes that cost-sharing assistance remains available. However, net present values are calculated and presented both with and without cost-sharing assistance.

Table 6. Cash Flow for Forty Year Rotation of Loblolly Pine

Year	Area	Activity	Costs	Income	Net Income After Tax
1980	A	Clearcut	\$3576	\$71,520	\$ 57,073
	B,C,D	Hdwd. Removal	4464	44,640	33,748
	A	Site Preparation	1960		(1,960)
1981	A	Tree Planting	2880		(2,880)
1983	B	Clearcut	3682	73,633	58,759
	B	Site Preparation	2080		(2,080)
1984	B	Tree Planting	2165		(2,165)
1986	C	Clearcut	4786	95,725	76,389
	C	Site Prep.	2207		(2,207)

Table 6 (Continued)

Year	Area	Activity	Costs	Income	Income Net after Tax
1987	C	Tree Planting	\$2297		\$(2,297)
1989	D	Clearcut	6222	\$124,445	99,307
	D	Site Prep.	2342		(2,342)
1990	D	Tree Planting	2438		(2,438)
1998	A	Thinning - Age 18	3565	35,649	27,307
2001	A	Prescribe Burn	728		( 437)
	B	Thinning Age 18	3783	37,831	28,912
2004	B	Prescribe Burn	772		( 463)
	C	Thinning Age 18	4015	40,147	30,682
2006	A	Thinning Age 25	18014	180,137	136,363
2007	C	Prescribe Burn	819		( 491)
	D	Thinning Age 18	4346	43,456	33,204
2009	B	Thinning Age 25	19116	191,163	144,677
2010	D	Prescribe Burn	869		( 521)
2012	C	Thinning Age 25	20286	202,864	153,532
2013	A	Prescribe Burn	923		( 554)
	A	Thinning Age 32	24713	247,125	186,905
2015	D	Thinning Age 25	21528	215,280	162,930
2016	B	Prescribe Burn	979		( 587)
	B	Thinning Age 32	26225	262,251	198,331



Table 6 (Continued)

Year	Area	Activity	Costs	Income	Net Income After Tax
2019	C	Prescribe Burn	\$ 1039	\$	\$ ( 623)
	C	Thinning Age 32	27820	278,203	210,470
2020	A	Final Harvest	72441	1,448,813	1,156,312
	B	Present Value of			1,090,850
	C	Rotation dis-			1,029,119
	D	counted @ 4%			1,193,571
	A, B, C, & D	Future Value of Property Tax and Upkeep Compounded at 4%			(121,632)

## WITH COST-SHARING:

Net Present Value:  
\$1,264,916

Equivalent Annual Income:  
\$ 63,908

## WITHOUT COST-SHARING:

Net Present Value:  
\$1,225,032

Equivalent Annual Income:  
\$ 61,893

The net present values listed in Table 6 represent only the value of the plantations. The value of the stand existing in 1980 is not included in the net present value calculations shown in Table 6. Staggering the liquidation of the original stand allows for added growth. This growth results in an increase in net present value of \$32,894. This brings the total net present value of the option to \$1,297,810. The equivalent annual income amounts to \$65,570.

#### Summary of case study

The results of the discounted cash flow analysis of the three options are presented in Table 7.

Table 7. Net Present Value and Equivalent Annual Income (EAI) For Three Investment Options

Option	Net Present Value	EAI
Lease No.1	\$ 86,874	\$ 3,840
Lease No. 2	85,273	3,769
Retained Management with Consultant	1,297,810	65,570

The landowner will do much better financially by hiring a consulting forester to assist in his retained management of the tract. Site preparation and tree planting require a cash investment by the landowner. These investment requirements are funded by an initial timber sale. Therefore, investment capital will not have to be borrowed or taken from savings.

The costs and prices in this analysis are typical of the market. Expected volume yields are derived from the same model. The large differences in net present values are caused by differences in: (1) the quality of end products, (2) tax

treatment of income, (3) pricing mechanisms, and (4) cost-sharing assistance.

#### SUMMARY

Over seven million acres of non-industrial private forest land are currently under long-term lease agreement with the forest industry. While many landowners appear content with these arrangements, others are dissatisfied. The major criticism is that a changing economy adversely affects landowner income under a rigid long-term contract.

Problem areas for the landowner include: (1) loss of capital gains treatment on income, (2) reduced income through poor utilization, (3) improper reporting of removals, (4) management goals, and (5) inequitable pricing mechanisms. Problem areas not directly affecting landowner income include: the loss of many of the privileges of the asset; possible liability for lessee actions; and condition of land when returned.

Numerous alternatives to leasing for forest land management are available. A few of the more noteworthy options involve the utilization of: consulting foresters, public forestry agencies, informal agreements with firms, corporate trusts, and landowner cooperatives.

In conclusion, the landowner must be aware of the potential benefits and costs before making a long-term management or leasing decision. If a contract is to be entered, it must be sufficiently flexible to fairly and equitably adjust for changes in the dynamic economy.



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