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# Economics of alternative uses of steep hill land in the Yazoo-Little Tallahatchie Watershed of Mississippi, 1974

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# ECONOMICS OF ALTERNATIVE USES OF STEEP HILL LAND IN THE YAZOO-LITTLE TALLAHATCHIE WATERSHED OF MISSISSIPPI, 1974

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Forest Service USDA

## Foreword

This study was conducted under Cooperative Agreement No. 42 of the Mississippi Agricultural and Forestry Experiment Station and the United States Department of Agriculture, Forest Service, Y-LT Flood Prevention Project. The analysis is applicable for 1974 and was completed by personnel of the Department of Agricultural Economics. Much data including timber yields, prices and planting costs, were furnished by personnel of the Y-LT Flood Prevention Project, for which the authors are very appreciative. However, the authors are solely responsible for the contents of this publication.

J. G. D. and J. E. W.

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# Economics of Alternative Uses of Steep Hill Land in the Yazoo-Little Tallahatchie Watershed of Mississippi, 1974

The Yazoo-Little Tallahatchie (Y-LT) Watershed, which includes all or part of 19 northwest Mississippi counties (Figure 1), is covered by the Y-LT flood prevention project. This project was initiated in 1936 as a soil erosion control and flood prevention project. A primary tool for accomplishing the goals of the project has been reforestation of steep, eroded lands in the watershed and more than 500,000 acres have been planted to Loblolly pine since 1948. Soil erosion caused by run-off of rainfall has been virtually eliminated in many parts of the watershed as a result of reforestation.

During the ten year period ending in 1972, approximately 125,000 acres of land in the Yazoo-Little Tallahatchie Watershed were cleared of woods and converted to other uses, primarily forage crops for beef cattle.[1] A high proportion of the land cleared is steep and subject to severe erosion. Data available from two counties in the watershed, Lafayette and Yalobusha, show that 68 percent of the land cleared from 1963 to 1971 was Soil Conservation Service Land Capability Class VI and VII. A survey taken in 1973 in Holmes and Panola counties revealed that 67 percent of land cleared on the 67 farms surveyed was classed by the owner as "not suited for row crops or small grains." The only practical alternative uses of non-row crop land would be cattle and timber.

## Objectives

The purpose of this study was to estimate and compare costs and returns from timber and beef cattle in the Y-LT area. Specifically, the objectives were to:

1. Ascertain the extent of land clearing in the area, estimate clearing cost per acre and identify problems associated with converting forest land to pasture;
2. Estimate costs of establishing forage crops and costs and returns from producing beef cattle on cleared land;
3. Revise and update previous studies and expected returns from timber production; and
4. Compare the returns estimated in 2 and 3.

## Scope and Procedure

The study was generally limited to steep hill land in the Y-LT Watershed---Land Class A and B. Land Class A included timber site indexes 80 and 90 (50 year base) and Land Class B included timber site indexes 60 and 70. Annual returns were estimated for both timber and beef cattle for the two land classes.

Data needed for determining the extent of land clearing were obtained from U. S. Forest Service Project Foresters. Clearing costs, type of land cleared, and forage-beef cattle productivity estimates were obtained from a survey of farmers in the area. To the maximum extent possible, the costs and returns budgets for beef production reflect the actual experience of beef producers in the area. Input prices used for budgeting returns from beef cattle production were basically May, 1974 prices charged at local farmer cooperatives. Product prices represent five-year average prices received by farmers at the Jackson, Mississippi market.

Data for the timber enterprise were largely furnished by Y-LT personnel. Timber yield data have been updated by Y-LT personnel to reflect the latest information available. The yields used in the study are reported in Appendix Tables 8-11. Alternative product prices and discount rates selected for the analysis were expected to cover any expected changes in the foreseeable future. The alternative establishment costs considered reflect benefits of all cost-share programs currently available to landowners in the area.[2]

[1]**Summary of land cleared in Y-LT counties, 1960-71, unpublished data, Office of Manager, Y-LT Flood Prevention Project, Oxford, Mississippi.**

[2]**These prices, costs and discount rates were selected in consultation with Y-LT personnel.**

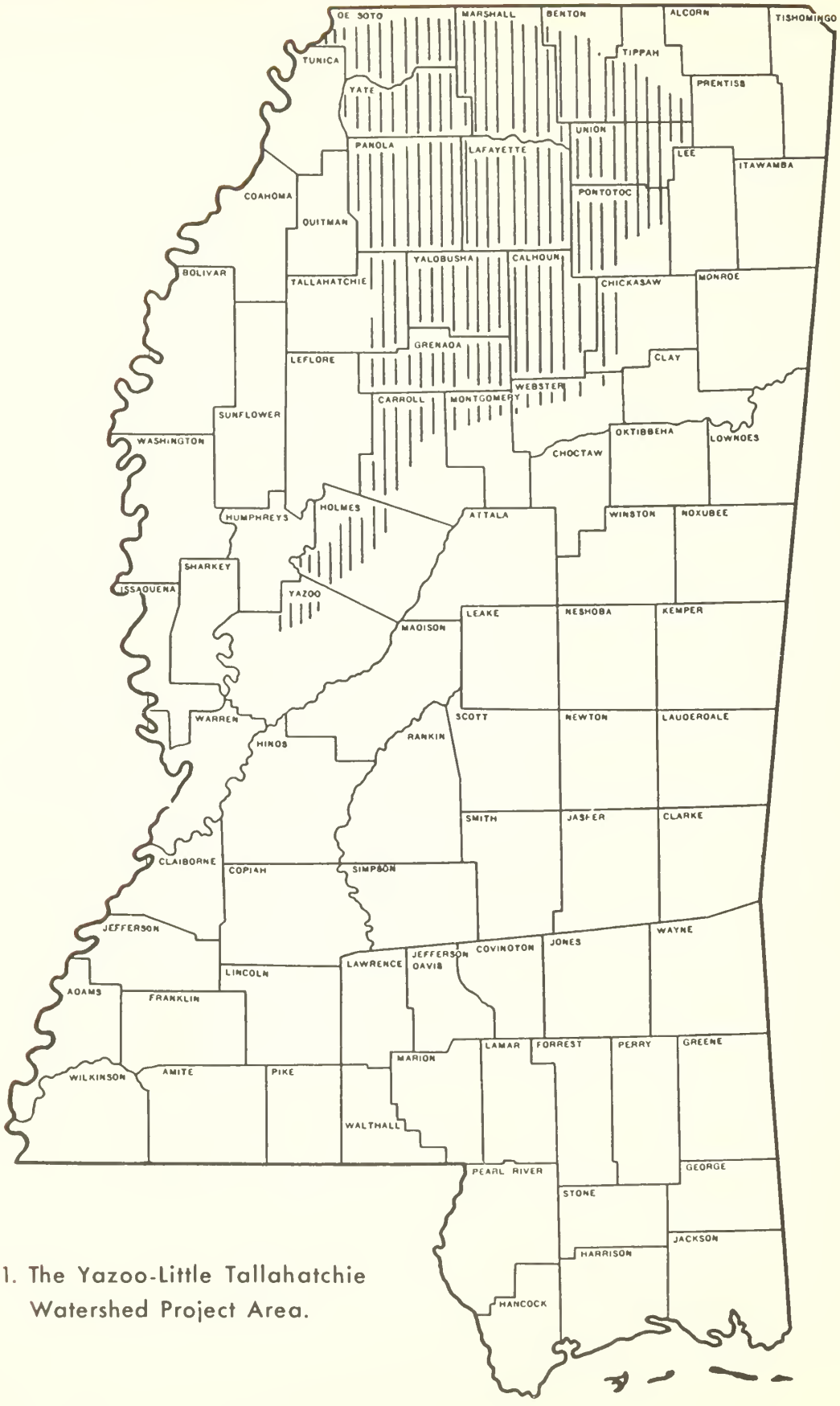


Figure 1. The Yazoo-Little Tallahatchie Watershed Project Area.

The distribution of land planted to trees in the Y-LT was estimated from Y-LT Watershed Project data reported in a previous study.[3] The estimated distribution is 7, 14, 33 and 46 percent, respectively, for timber site index 90, 80, 70 and 60. Thus, 21 percent of the land planted to trees in the area is Land Class A and 79 percent is Land Class B, as defined in this study. One third of the Class A land had a site index of 90 and the other two thirds was site index 80 land. Estimated returns from timber on site index 90 and site index 80 land were weighted according to this distribution to derive estimates of returns from Class A land. Estimates of returns from Class B land were derived in the same way, using weights of 42 percent for site index 70 and 58 percent for site index 60.

## Results

*Land Clearing.* From 1960 until 1972 approximately 125,000 acres of upland in the Y-LT Watershed were cleared of woodland.[4] Nearly 17,000 acres of the land cleared were in pine timber. The landowners interviewed received an average of 4 dollars per acre for timber from land that was cleared. Thus, only a small percentage of land cleared in the watershed was in high-value timber production.

The 67 landowners surveyed had each cleared an average of 137 acres during the ten year period. The average age of trees on the land cleared was estimated by the landowners to be 20 years. Most of the land was cleared with a clearing blade, windrowed and burned. The reported cost for these operations averaged $64 per acre. This cost would be significantly higher in 1974.

Clearing upland for crop production in the Y-LT Watershed creates critical problems. Much of the land is very steep (15 - 20 percent slopes) and contains soils that are generally fine textured and subject to severe erosion. After clearing and some seedbed preparation, it is difficult to establish even close-growing permanent forages without severe soil erosion. Data obtained in the survey indicate that 20 to 30 percent of all land seeded to permanent type forages had to be reseeded, primarily because of sheet and gully erosion. These gullies were usually filled-in and the area reseeded, usually one year after initial seeding. This further increases costs and reduces net returns.

After land in the area is cleared and seeded to forage, production is not immediate. Farmers surveyed reported that permanent type forage would produce, on the average, only about 25 percent of its ultimate potential in the first

**Table 1. Estimated Costs and Returns from Beef Production, per acre of Land Class A, Y-LT Watershed 1974.**

| Item | Unit | No. of Units | Price per Unit | Amount |
|---|---|---|---|---|
| Receipts[a] | | | | |
| Weaned calves | Cwt. | 1.11 | $41.07 | $45.59 |
| Stocker calves | Cwt. | .72 | 36.74 | 26.45 |
| Cull brood stock | Cwt. | .39 | 28.31 | 11.04 |
| Total | Cwt. | 2.22 | | $83.08 |
| Costs | | | | |
| Pasture[b] | Ac. | 1.00 | $41.91 | $41.91 |
| Hay[c] | Ton | .44 | 29.00 | 12.76 |
| Supplemental feed | Cwt. | 1.10 | 5.00 | 5.50 |
| Vet. and medicine | Head | .38 | 6.30 | 2.39 |
| Fence repair | Ac. | 1.00 | .67 | .67 |
| Marketing | Cwt. | 2.22 | 1.50 | 3.33 |
| Salt & minerals | Head | .38 | .50 | .19 |
| General overhead | Ac. | 1.00 | 1.75 | 1.75 |
| Labor[d] | Hour | 1.50 | 2.00 | 3.00 |
| Capital[e] | Dol. | 125.80 | .08 | 10.08 |
| Total | | | | $81.58 |
| Return to land and management | | | | $ 1.50 |

[a] **Receipts reflect a carrying capacity of 110 cows, 33 stocker calves and 4 bulls on 300 acres, and a calving rate of 88 percent.**

[b] **Represents a composite of mixed permanent pasture and winter grazing for stockers. Costs include cost for labor and interest on operating capital.**

[c] **Includes costs of feeding hay.**

[d] **Labor shown here is for care of herd only. Labor required for other jobs is included in items above.**

[e] **Capital costs include investment in animals and operating capital not included in items above.**

[3] **Wayne C. Curtis and John E. Waldrop,** *Income and Employment Effects of Farm Forestry Investments in the Yazoo-Little Tallahatchie Watershed of Mississippi: An Application of Input-Output Analysis,* **AEc. Tech. Pub. No. 13, August 1971.**

[4] **Summary of land cleared in Y-LT counties, 1960-71, op. cit.**

year after establishment. In the second year after establishment, the crop would produce approximately 75 percent of its full potential. Thus, more than two years are required for permanent type forage crops to reach full production. Then, over-grazing, particularly during periods of drought, results in damage to the stand and subsequently leaves bare areas of land that often erode into gullies.

*Returns to Beef Cattle.* Net returns from producing beef cattle were estimated for the two land classes identified above. Total receipts and costs were estimated for a 300 acre operation and converted to a per acre basis for Land Class A (Table 1.) and for Land Class B (Table 2.). The accounting of costs was done so that net returns could be calculated as "returns to land and management"---to make returns from beef cattle directly comparable to returns from planted timber.

Several assumptions were necessary for estimating costs and returns from a beef cattle operation. In addition to those given in the footnotes to Tables 1 and 2, it was assumed that a spring-calving program would be followed and that approximately one-third of calves weaned in the fall would be grazed on winter forage and sold as stockers. Calving rate, weaning weight, rate of grain, supplemental feed requirements and stocking rates on pastures were based on data obtained from farmers surveyed in the area.

The estimated costs and returns reflect a *high level of management.* It was assumed that land cleared and planted to grass would be managed so that erosion would be minimized. Seedbed preparation, seeding rates and fertilizer rates used are those recommended for obtaining a good stand and rapid growth of grass.

The same pasture program, calving rates and management practices were assumed for both land classes. Thus, the difference in estimated returns reflects differences in productivity levels. The carrying capacities of pastures in the area were adjusted for differences in the productivity levels of the two land classes, with the assistance of Mississippi Agricultural and Forestry Experiment Station agronomists.[5]

A cow on Land Class A required 2.5 acres of permanent pasture; one cow on Land Class B permanent pasture required 2.8 acres. The two land classes were assumed to have equal carrying capacity for winter annual pasture.

Slightly more than 50 percent of costs is pasture costs. Estimated annual per acre cost for mixed bermuda-bahia-dallisgrass-lespedeza permanent pasture, and wheat-ryegrass winter annual pasture are given in Appendix Tables 1 and 2. Annual cost for permanent pasture includes *depreciation and interest on establishment cost* (Appendix Table 3.).

Returns to land and management were estimated to be $1.50 per acre for Land Class A (Table 1.) and a negative $3.58 for Land

**Table 2. Estimated Costs and Returns from Beef Production, per acre of Land Class B, Y-LT Watershed, 1974.**

| Item | Unit | No. of Units | Price per Unit | Amount |
|---|---|---|---|---|
| Receipts | | | | |
| Weaned calves | Cwt. | .98 | $41.07 | $40.25 |
| Stocker calves | Cwt. | .65 | 36.74 | 23.88 |
| Cull brood stock | Cwt. | .36 | 28.31 | 10.19 |
| Total | Cwt. | 1.99 | | $74.32 |
| Costs | | | | |
| Pasture | Ac. | 1.00 | $41.91 | $41.91 |
| Hay | Ton | .40 | 29.00 | 11.60 |
| Supplemental feed | Cwt. | .98 | 5.00 | 4.90 |
| Vet. and medicine | Head | .34 | 6.30 | 2.14 |
| Fence repair | Ac. | 1.00 | .67 | .67 |
| Marketing | Cwt. | 1.99 | 1.50 | 2.98 |
| Salt & minerals | Head | .34 | .50 | .17 |
| General overhead | Ac. | 1.00 | 1.75 | 1.75 |
| Labor | Hour | 1.35 | 2.00 | 2.70 |
| Capital | Dol. | 113.45 | .08 | 9.08 |
| Total | | | | $77.90 |
| Return to land and management | | | | -$3.58 |

**Receipts reflect a carrying capacity of 98 cows, 30 stocker calves and 4 bulls on 300 acres, and a calving rate of 88 percent.**

**Represents a composite of mixed permanent pasture and winter grazing for stockers. Costs include cost for labor and interest on operating capital.**

**Includes costs of feeding hay.**

**Labor shown here is for care of herd only. Labor required for other jobs is included in items above.**

**Capital costs include investment in animals and operating capital not included in items above.**

**[5]Dr. H. B. Vanderford and Dr. Vance Watson, Department of Agronomy, Mississippi State University.**

Class B (Table 2.). Any sizable tract of hill land in the area would most likely contain a mixture of both land classes; thus, near zero return to land and management could be expected if the relationship of prices of inputs to prices of beef cattle remain about the same as that used in the analysis.

*Returns to Planted Timber.* The net returns resulting from planted timber were estimated under the following assumptions:

1. Landowners will attempt to maximize profits in allocating land resources.
2. Product prices and establishment costs used are appropriate for the entire period of the analysis. Actual prices are likely to change during the time period included, however, relative prices are likely to be more stable.
3. Thinning a stand on a periodic basis is a feasible approach to growing timber in the Y-LT Watershed.
4. Demand for timber products grown in the area will be adequate to clear the market at stated prices.

The analysis included many alternative combinations of product prices, establishment costs and discount rates. For purposes of comparing returns to land and management from growing timber with those from growing beef cattle, this report includes results from using one specific set of costs, one specific set of prices and one specified discount rate (Tables 3-6 and Appendix Tables 1-7). Establishment cost of $20 per acre, a pulpwood price of $8 per cord stumpage, a sawtimber price of $80 per thousand board feet stumpage and a discount rate of 8 percent were selected. Other costs, prices (for timber and beef cattle) and rates of discount can be easily substituted for those selected if desired.[6]

Annual equivalent net returns per acre to land and management were estimated to be $2.09 for site index 60 land, $3.91 for site index 70 land, $7.52 for site index 80 land, and $10.47 for site index 90 land. These estimated returns were appropriately weighted to provide return estimates for Land Classes A and B as follows:

$NR_t$ Land Class A =
[(AE SI 80) (Percent SI 80)] +
[(AE SI 90) (Percent SI 90)][7]
where:
$NR_t$ = annual equivalent net returns to land and management
AE = annual equivalent net return
SI = site index

$NR_t$ Land Class B =
[(AE SI 60) (Percent SI 60)] +
[(AE SI 70) (Percent SI 70)][8]
where the symbols are as defined above.

Appropriate substitution yielded estimates of returns as follows:
$NR_t$ Land Class A =
($7.52) (.67) + ($10.47) (.33)
= $8.50 per acre
$NR_t$ Land Class B =
($2.09) (.58) + ($3.91) (.42)
= $2.85 per acre

The above returns assume that the land initially had no merchantable timber; i.e. it was "bare" land. Since timber stands may be removed before producing any revenue or stands may be liquidated before reaching economic maturity (before optimum rotation age), the annual equivalent returns to stands of selected ages were estimated. These estimates are presented in Table 7.[9] The estimated annual equivalents for the higher site indexes and older stands are quite high. These returns may be substituted into the equations and compared to those for beef cattle on comparable land. After a stand is clear cut (harvested) the appropriate expected returns are those for "bare" land; i.e., those reported in Tables 3-6.

## Conclusions

An estimated 125,000 acres of woodland in the Yazoo-Little Tallahatchie Watershed have been cleared and allocated to other uses since 1960. Most of the cleared land has been planted to grass for beef production. The practice of clearing the relatively steep land and establishing pastures is not without problems. Because of its steepness and soil types, the land is subject to severe erosion. Often, pastures must be seeded more than once and sometimes require additional grading and land forming. Overgrazing, particularly during periods of drought, causes loss of stand and consequent erosion of soil.

Comparison of returns to a cow-calf operation with those expected from planted timber on these soils indicate that (1) returns to land and management are essentially zero

**[6]Net returns for alternative timber prices, cost and discount rates have been included since they are somewhat difficult to estimate. The reader may select an appropriate beef cattle price and estimate net returns from information provided in this report.**

**[7]Enter Percent as decimal.**

**[8]See footnote 7.**

**[9]The estimated returns are appropriate for owners of "bare" land in the Y-LT Watershed and owners with previously planted stands in the Y-LT. Owners of land that is not cleared would likely incur additional establishment costs.**

for the cow-calf enterprise and (2) returns to land and management from planted timber are positive but very small. However, for timber stands that have been established for several years, returns to land and management were estimated to be substantially above those from beef cattle.

The results of this study fail to reveal an economic basis for changing land use from timber to cattle.

The comparison of returns from timber with returns from beef cattle was made for particular prices. These can be expected to change. Estimates for specific cost and price situations for timber production have been included in the report. The changes in net returns in response to change in prices of beef cattle can easily be estimated from the information included in the report.

**Table 3. Optimum Rotation and Capitalized Value With Annual Equivalent, Site Index 60 Land, Specified Interest Rates, Pulpwood Prices and Establishment Costs, Y-LT Watershed, 1974.**

| Interest Rate | Price Per Cord | Establish-ment Cost | Annual Equivalent | Capitalized Value | Optimum Rotation |
|---|---|---|---|---|---|
| -percent- | | ----------dollars---------- | | | --years-- |
| 6 | 6 | 0 | 4.98 | 83.03 | 40 |
| 6 | 6 | 4 | 4.72 | 78.60 | 40 |
| 6 | 6 | 5 | 4.65 | 77.49 | 40 |
| 6 | 6 | 10 | 4.32 | 71.95 | 40 |
| 6 | 6 | 20 | 3.65 | 60.88 | 40 |
| 6 | 8 | 0 | 5.55 | 92.50 | 40 |
| 6 | 8 | 4 | 5.28 | 88.07 | 40 |
| 6 | 8 | 5 | 5.22 | 86.96 | 40 |
| 6 | 8 | 10 | 4.89 | 81.43 | 40 |
| 6 | 8 | 20 | 4.22 | 70.35 | 40 |
| 6 | 10 | 0 | 6.12 | 101.98 | 40 |
| 6 | 10 | 4 | 5.85 | 97.55 | 40 |
| 6 | 10 | 5 | 5.79 | 96.44 | 40 |
| 6 | 10 | 10 | 5.45 | 90.90 | 40 |
| 6 | 10 | 20 | 4.79 | 79.82 | 40 |
| 6 | 12 | 0 | 6.69 | 111.45 | 40 |
| 6 | 12 | 4 | 6.42 | 107.02 | 40 |
| 6 | 12 | 5 | 6.35 | 105.91 | 40 |
| 6 | 12 | 10 | 6.02 | 100.37 | 40 |
| 6 | 12 | 20 | 5.36 | 89.30 | 40 |
| 6 | 15 | 0 | 7.54 | 125.66 | 40 |
| 6 | 15 | 4 | 7.27 | 121.23 | 40 |
| 6 | 15 | 5 | 7.21 | 120.12 | 40 |
| 6 | 15 | 10 | 6.88 | 114.59 | 40 |
| 6 | 15 | 20 | 6.21 | 103.51 | 40 |
| 7 | 6 | 0 | 4.07 | 58.20 | 40 |
| 7 | 6 | 4 | 3.77 | 53.91 | 40 |
| 7 | 6 | 5 | 3.70 | 52.84 | 40 |
| 7 | 6 | 10 | 3.32 | 47.49 | 40 |
| 7 | 6 | 20 | 2.57 | 36.77 | 40 |
| 7 | 8 | 0 | 4.58 | 65.38 | 40 |
| 7 | 8 | 4 | 4.28 | 61.10 | 40 |
| 7 | 8 | 5 | 4.20 | 60.03 | 40 |
| 7 | 8 | 10 | 3.83 | 54.67 | 40 |
| 7 | 8 | 20 | 3.08 | 43.95 | 40 |
| 7 | 10 | 0 | 5.08 | 72.57 | 40 |
| 7 | 10 | 4 | 4.78 | 68.28 | 40 |
| 7 | 10 | 5 | 4.70 | 67.21 | 40 |
| 7 | 10 | 10 | 4.33 | 61.85 | 40 |
| 7 | 10 | 20 | 3.58 | 51.14 | 40 |

Table 3. Optimum Rotation and Capitalized Value With Annual Equivalent, Site Index 60 Land, Specified Interest Rates, Pulpwood Prices and Establishment Costs, Y-LT Watershed, 1974. (Continued)

| Interest Rate | Price Per Cord | Establishment Cost | Annual Equivalent | Capitalized Value | Optimum Rotation |
|---|---|---|---|---|---|
| -percent- | | ----------dollars---------- | | | --years-- |
| 7 | 12 | 0 | 5.58 | 79.75 | 40 |
| 7 | 12 | 4 | 5.28 | 75.46 | 40 |
| 7 | 12 | 5 | 5.21 | 74.39 | 40 |
| 7 | 12 | 10 | 4.83 | 69.03 | 40 |
| 7 | 12 | 20 | 4.08 | 58.32 | 40 |
| 7 | 15 | 0 | 6.34 | 90.52 | 40 |
| 7 | 15 | 4 | 6.04 | 86.24 | 40 |
| 7 | 15 | 5 | 5.96 | 85.17 | 40 |
| 7 | 15 | 10 | 5.59 | 79.81 | 40 |
| 7 | 15 | 20 | 4.84 | 69.09 | 40 |
| 8 | 6 | 0 | 3.33 | 41.58 | 40 |
| 8 | 6 | 4 | 2.99 | 37.39 | 40 |
| 8 | 6 | 5 | 2.91 | 36.34 | 40 |
| 8 | 6 | 10 | 2.49 | 31.10 | 40 |
| 8 | 6 | 20 | 1.65 | 20.62 | 40 |
| 8 | 8 | 0 | 3.77 | 47.12 | 40 |
| 8 | 8 | 4 | 3.43 | 42.92 | 40 |
| 8 | 8 | 5 | 3.35 | 41.88 | 40 |
| 8 | 8 | 10 | 2.93 | 36.64 | 40 |
| 8 | 8 | 20 | 2.09 | 26.15 | 40 |
| 8 | 10 | 0 | 4.21 | 52.65 | 40 |
| 8 | 10 | 4 | 3.88 | 48.46 | 40 |
| 8 | 10 | 5 | 3.79 | 47.41 | 40 |
| 8 | 10 | 10 | 3.37 | 42.17 | 40 |
| 8 | 10 | 20 | 2.54 | 31.69 | 40 |
| 8 | 12 | 0 | 4.66 | 58.19 | 40 |
| 8 | 12 | 4 | 4.32 | 54.00 | 40 |
| 8 | 12 | 5 | 4.24 | 52.95 | 40 |
| 8 | 12 | 10 | 3.82 | 47.71 | 40 |
| 8 | 12 | 20 | 2.98 | 37.23 | 40 |
| 8 | 15 | 0 | 5.32 | 66.49 | 40 |
| 8 | 15 | 4 | 4.98 | 62.30 | 40 |
| 8 | 15 | 5 | 4.90 | 61.25 | 40 |
| 8 | 15 | 10 | 4.48 | 56.01 | 40 |
| 8 | 15 | 20 | 3.64 | 45.53 | 40 |
| 9 | 6 | 0 | 2.71 | 30.16 | 40 |
| 9 | 6 | 4 | 2.34 | 26.03 | 40 |
| 9 | 6 | 5 | 2.25 | 25.00 | 40 |
| 9 | 6 | 10 | 1.78 | 19.83 | 40 |
| 9 | 6 | 20 | -.43 | -4.74 | 40 |
| 9 | 8 | 0 | 3.10 | 34.48 | 40 |
| 9 | 8 | 4 | 2.73 | 30.35 | 40 |
| 9 | 8 | 5 | 2.64 | 29.32 | 40 |
| 9 | 8 | 10 | 2.17 | 24.15 | 40 |
| 9 | 8 | 20 | 1.24 | 13.82 | 40 |
| 9 | 10 | 0 | 3.49 | 38.80 | 40 |
| 9 | 10 | 4 | 3.12 | 34.67 | 40 |
| 9 | 10 | 5 | 3.03 | 33.64 | 40 |
| 9 | 10 | 10 | 2.56 | 28.47 | 40 |
| 9 | 10 | 20 | 1.63 | 18.14 | 40 |

Table 3. Optimum Rotation and Capitalized Value With Annual Equivalent, Site Index 60 Land, Specified Interest Rates, Pulpwood Prices and Establishment Costs, Y-LT Watershed, 1974. (Continued)

| Interest Rate | Price Per Cord | Establishment Cost | Annual Equivalent | Capitalized Value | Optimum Rotation |
|---|---|---|---|---|---|
| -percent- | | ----------dollars---------- | | | --years-- |
| 9 | 12 | 0 | 3.88 | 43.12 | 40 |
| 9 | 12 | 4 | 3.51 | 38.99 | 40 |
| 9 | 12 | 5 | 3.42 | 37.96 | 40 |
| 9 | 12 | 10 | 2.95 | 32.79 | 40 |
| 9 | 12 | 20 | 2.02 | 22.47 | 40 |
| 9 | 15 | 0 | 4.46 | 49.60 | 40 |
| 9 | 15 | 4 | 4.09 | 45.47 | 40 |
| 9 | 15 | 5 | 4.00 | 44.44 | 40 |
| 9 | 15 | 10 | 3.53 | 39.27 | 40 |
| 9 | 15 | 20 | 2.61 | 28.95 | 40 |
| 10 | 6 | 0 | 2.22 | 22.16 | 40 |
| 10 | 6 | 4 | 1.81 | 18.07 | 40 |
| 10 | 6 | 5 | 1.70 | 17.05 | 40 |
| 10 | 6 | 10 | 1.19 | 11.93 | 40 |
| 10 | 6 | 20 | -.81 | -8.08 | 30 |
| 10 | 8 | 0 | 2.56 | 25.56 | 40 |
| 10 | 8 | 4 | 2.15 | 21.47 | 40 |
| 10 | 8 | 5 | 2.05 | 20.45 | 40 |
| 10 | 8 | 10 | 1.53 | 15.34 | 40 |
| 10 | 8 | 20 | -.37 | -3.70 | 30 |
| 10 | 10 | 0 | 2.90 | 28.97 | 40 |
| 10 | 10 | 4 | 2.49 | 24.88 | 40 |
| 10 | 10 | 5 | 2.39 | 23.85 | 40 |
| 10 | 10 | 10 | 1.87 | 18.74 | 40 |
| 10 | 10 | 20 | .85 | 8.52 | 40 |
| 10 | 12 | 0 | 3.24 | 32.37 | 40 |
| 10 | 12 | 4 | 2.83 | 28.28 | 40 |
| 10 | 12 | 5 | 2.73 | 27.26 | 40 |
| 10 | 12 | 10 | 2.21 | 22.15 | 40 |
| 10 | 12 | 20 | 1.19 | 11.92 | 40 |
| 10 | 15 | 0 | 3.93 | 39.28 | 20 |
| 10 | 15 | 4 | 3.46 | 34.59 | 20 |
| 10 | 15 | 5 | 3.34 | 33.41 | 20 |
| 10 | 15 | 10 | 2.75 | 27.54 | 20 |
| 10 | 15 | 20 | 1.70 | 17.03 | 40 |
| 11 | 6 | 0 | 1.81 | 16.46 | 40 |
| 11 | 6 | 4 | 1.36 | 12.40 | 40 |
| 11 | 6 | 5 | 1.25 | 11.39 | 40 |
| 11 | 6 | 10 | -.02 | -.15 | 30 |
| 11 | 6 | 20 | -1.17 | -10.60 | 30 |
| 11 | 8 | 0 | 2.11 | 19.17 | 40 |
| 11 | 8 | 4 | 1.66 | 15.10 | 40 |
| 11 | 8 | 5 | 1.55 | 14.09 | 40 |
| 11 | 8 | 10 | .99 | 9.01 | 40 |
| 11 | 8 | 20 | -.79 | -7.17 | 30 |
| 11 | 10 | 0 | 2.41 | 21.87 | 40 |
| 11 | 10 | 4 | 1.96 | 17.81 | 40 |
| 11 | 10 | 5 | 1.85 | 16.79 | 40 |
| 11 | 10 | 10 | 1.29 | 11.71 | 40 |
| 11 | 10 | 20 | -.41 | -3.73 | 30 |

Table 3. Optimum Rotation and Capitalized Value With Annual Equivalent, Site Index 60 Land, Specified Interest Rates, Pulpwood Prices and Establishment Costs, Y-LT Watershed, 1974. (Continued)

| Interest Rate | Price Per Cord | Establishment Cost | Annual Equivalent | Capitalized Value | Optimum Rotation |
|---|---|---|---|---|---|
| -percent- | | ----------dollars---------- | | | --years-- |
| 11 | 12 | 0 | 2.80 | 25.49 | 20 |
| 11 | 12 | 4 | 2.30 | 20.92 | 20 |
| 11 | 12 | 5 | 2.18 | 19.78 | 20 |
| 11 | 12 | 10 | 1.59 | 14.42 | 40 |
| 11 | 12 | 20 | -.03 | -.29 | 30 |
| 11 | 15 | 0 | 3.50 | 31.86 | 20 |
| 11 | 15 | 4 | 3.00 | 27.29 | 20 |
| 11 | 15 | 5 | 2.88 | 26.15 | 20 |
| 11 | 15 | 10 | 2.25 | 20.44 | 20 |
| 11 | 15 | 20 | .99 | 9.03 | 20 |
| 12 | 6 | 0 | 1.48 | 12.36 | 40 |
| 12 | 6 | 4 | 1.00 | 8.31 | 40 |
| 12 | 6 | 5 | .88 | 7.30 | 40 |
| 12 | 6 | 10 | -.26 | -2.19 | 30 |
| 12 | 6 | 20 | -1.50 | -12.54 | 30 |
| 12 | 8 | 0 | 1.74 | 14.52 | 40 |
| 12 | 8 | 4 | 1.26 | 10.47 | 40 |
| 12 | 8 | 5 | 1.14 | 9.46 | 40 |
| 12 | 8 | 10 | .53 | 4.41 | 40 |
| 12 | 8 | 20 | -1.18 | -9.82 | 30 |
| 12 | 10 | 0 | 2.08 | 17.35 | 20 |
| 12 | 10 | 4 | 1.55 | 12.89 | 20 |
| 12 | 10 | 5 | 1.41 | 11.77 | 20 |
| 12 | 10 | 10 | .79 | 6.57 | 40 |
| 12 | 10 | 20 | -.85 | -7.11 | 30 |
| 12 | 12 | 0 | 2.50 | 20.82 | 20 |
| 12 | 12 | 4 | 1.96 | 16.36 | 20 |
| 12 | 12 | 5 | 1.83 | 15.24 | 20 |
| 12 | 12 | 10 | 1.16 | 9.66 | 20 |
| 12 | 12 | 20 | -.53 | -4.39 | 30 |
| 12 | 15 | 0 | 3.12 | 26.02 | 20 |
| 12 | 15 | 4 | 2.59 | 21.56 | 20 |
| 12 | 15 | 5 | 2.45 | 20.44 | 20 |
| 12 | 15 | 10 | 1.78 | 14.87 | 20 |
| 12 | 15 | 20 | -.04 | -.31 | 30 |

Table 4. Optimum Rotation and Capitalized Value With Annual Equivalent, Site Index 70 Land, Specified Interest Rates, Pulpwood Prices and Establishment Costs, Y-LT Watershed, 1974.

| Interest Rate | Price Per Cord | Establishment Cost | Annual Equivalent | Capitalized Value | Optimum Rotation |
|---|---|---|---|---|---|
| -percent- | | ----------dollars---------- | | | --years-- |
| 6 | 6 | 0 | 7.55 | 125.79 | 40 |
| 6 | 6 | 4 | 7.28 | 121.35 | 40 |
| 6 | 6 | 5 | 7.21 | 120.25 | 40 |
| 6 | 6 | 10 | 6.88 | 114.71 | 40 |
| 6 | 6 | 20 | 6.22 | 103.63 | 40 |
| 6 | 8 | 0 | 8.21 | 136.90 | 40 |
| 6 | 8 | 4 | 7.95 | 132.47 | 40 |

Table 4. Optimum Rotation and Capitalized Value With Annual Equivalent, Site Index 70 Land, Specified Interest Rates, Pulpwood Prices and Establishment Costs, Y-LT Watershed, 1974. (Continued)

| Interest Rate | Price Per Cord | Establishment Cost | Annual Equivalent | Capitalized Value | Optimum Rotation |
|---|---|---|---|---|---|
| -percent | | ----------dollars---------- | | | --years-- |
| 6 | 8 | 5 | 7.88 | 131.36 | 40 |
| 6 | 8 | 10 | 7.55 | 125.82 | 40 |
| 6 | 8 | 20 | 6.88 | 114.75 | 40 |
| 6 | 10 | 0 | 8.88 | 148.02 | 40 |
| 6 | 10 | 4 | 8.62 | 143.59 | 40 |
| 6 | 10 | 5 | 8.55 | 142.48 | 40 |
| 6 | 10 | 10 | 8.22 | 136.94 | 40 |
| 6 | 10 | 20 | 7.55 | 125.86 | 40 |
| 6 | 12 | 0 | 9.55 | 159.14 | 40 |
| 6 | 12 | 4 | 9.28 | 154.70 | 40 |
| 6 | 12 | 5 | 9.22 | 153.60 | 40 |
| 6 | 12 | 10 | 8.88 | 148.06 | 40 |
| 6 | 12 | 20 | 8.22 | 136.98 | 40 |
| 6 | 15 | 0 | 10.67 | 177.83 | 30 |
| 6 | 15 | 4 | 10.38 | 172.99 | 30 |
| 6 | 15 | 5 | 10.31 | 171.78 | 30 |
| 6 | 15 | 10 | 9.94 | 165.73 | 30 |
| 6 | 15 | 20 | 9.22 | 153.62 | 30 |
| 7 | 6 | 0 | 6.18 | 88.35 | 40 |
| 7 | 6 | 4 | 5.88 | 84.06 | 40 |
| 7 | 6 | 5 | 5.81 | 82.99 | 40 |
| 7 | 6 | 10 | 5.43 | 77.63 | 40 |
| 7 | 6 | 20 | 4.68 | 66.92 | 40 |
| 7 | 8 | 0 | 6.78 | 96.87 | 40 |
| 7 | 8 | 4 | 6.48 | 92.58 | 40 |
| 7 | 8 | 5 | 6.41 | 91.51 | 40 |
| 7 | 8 | 10 | 6.03 | 86.15 | 40 |
| 7 | 8 | 20 | 5.28 | 75.44 | 40 |
| 7 | 10 | 0 | 7.38 | 105.38 | 40 |
| 7 | 10 | 4 | 7.08 | 101.10 | 40 |
| 7 | 10 | 5 | 7.00 | 100.03 | 40 |
| 7 | 10 | 10 | 6.63 | 94.67 | 40 |
| 7 | 10 | 20 | 5.88 | 83.95 | 40 |
| 7 | 12 | 0 | 8.04 | 114.80 | 30 |
| 7 | 12 | 4 | 7.71 | 110.19 | 30 |
| 7 | 12 | 5 | 7.63 | 109.04 | 30 |
| 7 | 12 | 10 | 7.23 | 103.28 | 30 |
| 7 | 12 | 20 | 6.47 | 92.47 | 40 |
| 7 | 15 | 0 | 9.20 | 131.40 | 30 |
| 7 | 15 | 4 | 8.88 | 126.79 | 30 |
| 7 | 15 | 5 | 8.79 | 125.64 | 30 |
| 7 | 15 | 10 | 8.39 | 119.88 | 30 |
| 7 | 15 | 20 | 7.59 | 108.37 | 30 |
| 8 | 6 | 0 | 5.06 | 63.24 | 40 |
| 8 | 6 | 4 | 4.72 | 59.04 | 40 |
| 8 | 6 | 5 | 4.64 | 58.00 | 40 |
| 8 | 6 | 10 | 4.22 | 52.75 | 40 |
| 8 | 6 | 20 | 3.38 | 42.27 | 40 |
| 8 | 8 | 0 | 5.59 | 69.87 | 40 |
| 8 | 8 | 4 | 5.25 | 65.68 | 40 |

Table 4. Optimum Rotation and Capitalized Value With Annual Equivalent, Site Index 70 Land, Specified Interest Rates, Pulpwood Prices and Establishment Costs, Y-LT Watershed, 1974. (Continued)

| Interest Rate | Price Per Cord | Establishment Cost | Annual Equivalent | Capitalized Value | Optimum Rotation |
|---|---|---|---|---|---|
| -percent- | | ----------dollars---------- | | | --years-- |
| 8 | 8 | 5 | 5.17 | 64.63 | 40 |
| 8 | 8 | 10 | 4.75 | 59.39 | 40 |
| 8 | 8 | 20 | 3.91 | 48.90 | 40 |
| 8 | 10 | 0 | 6.21 | 77.68 | 30 |
| 8 | 10 | 4 | 5.86 | 73.24 | 30 |
| 8 | 10 | 5 | 5.77 | 72.13 | 30 |
| 8 | 10 | 10 | 5.33 | 66.58 | 30 |
| 8 | 10 | 20 | 4.44 | 55.47 | 30 |
| 8 | 12 | 0 | 6.89 | 86.15 | 30 |
| 8 | 12 | 4 | 6.54 | 81.71 | 30 |
| 8 | 12 | 5 | 6.45 | 80.60 | 30 |
| 8 | 12 | 10 | 6.00 | 75.05 | 30 |
| 8 | 12 | 20 | 5.12 | 63.95 | 30 |
| 8 | 15 | 0 | 7.91 | 98.86 | 30 |
| 8 | 15 | 4 | 7.55 | 94.42 | 30 |
| 8 | 15 | 5 | 7.46 | 93.31 | 30 |
| 8 | 15 | 10 | 7.02 | 87.76 | 30 |
| 8 | 15 | 20 | 6.13 | 76.66 | 30 |
| 9 | 6 | 0 | 4.14 | 45.94 | 40 |
| 9 | 6 | 4 | 3.76 | 41.81 | 40 |
| 9 | 6 | 5 | 3.67 | 40.78 | 40 |
| 9 | 6 | 10 | 3.21 | 35.62 | 40 |
| 9 | 6 | 20 | 2.28 | 25.29 | 40 |
| 9 | 8 | 0 | 4.72 | 52.39 | 30 |
| 9 | 8 | 4 | 4.33 | 48.07 | 30 |
| 9 | 8 | 5 | 4.23 | 46.99 | 30 |
| 9 | 8 | 10 | 3.74 | 41.58 | 30 |
| 9 | 8 | 20 | 2.77 | 30.76 | 30 |
| 9 | 10 | 0 | 5.31 | 58.97 | 30 |
| 9 | 10 | 4 | 4.92 | 54.64 | 30 |
| 9 | 10 | 5 | 4.82 | 53.56 | 30 |
| 9 | 10 | 10 | 4.33 | 48.15 | 30 |
| 9 | 10 | 20 | 3.36 | 37.34 | 30 |
| 9 | 12 | 0 | 5.90 | 65.55 | 30 |
| 9 | 12 | 4 | 5.51 | 61.22 | 30 |
| 9 | 12 | 5 | 5.41 | 60.14 | 30 |
| 9 | 12 | 10 | 4.93 | 54.73 | 30 |
| 9 | 12 | 20 | 3.95 | 43.92 | 30 |
| 9 | 15 | 0 | 6.79 | 75.41 | 30 |
| 9 | 15 | 4 | 6.40 | 71.09 | 30 |
| 9 | 15 | 5 | 6.30 | 70.00 | 30 |
| 9 | 15 | 10 | 5.81 | 64.60 | 30 |
| 9 | 15 | 20 | 4.84 | 53.78 | 30 |
| 10 | 6 | 0 | 3.49 | 34.93 | 30 |
| 10 | 6 | 4 | 3.07 | 30.69 | 30 |
| 10 | 6 | 5 | 2.96 | 29.63 | 30 |
| 10 | 6 | 10 | 2.43 | 24.32 | 30 |
| 10 | 6 | 20 | 1.37 | 13.71 | 30 |
| 10 | 8 | 0 | 4.01 | 40.09 | 30 |
| 10 | 8 | 4 | 3.58 | 35.85 | 30 |

Table 4. Optimum Rotation and Capitalized Value With Annual Equivalent, Site Index 70 Land, Specified Interest Rates, Pulpwood Prices and Establishment Costs, Y-LT Watershed, 1974. (Continued)

| Interest Rate | Price Per Cord | Establishment Cost | Annual Equivalent | Capitalized Value | Optimum Rotation |
|---|---|---|---|---|---|
| -percent- | | ----------dollars---------- | | | --years-- |
| 10 | 8 | 5 | 3.48 | 34.78 | 30 |
| 10 | 8 | 10 | 2.95 | 29.48 | 30 |
| 10 | 8 | 20 | 1.89 | 18.87 | 30 |
| 10 | 10 | 0 | 4.52 | 45.25 | 30 |
| 10 | 10 | 4 | 4.10 | 41.00 | 30 |
| 10 | 10 | 5 | 3.99 | 39.94 | 30 |
| 10 | 10 | 10 | 3.46 | 34.64 | 30 |
| 10 | 10 | 20 | 2.40 | 24.03 | 30 |
| 10 | 12 | 0 | 5.04 | 50.41 | 30 |
| 10 | 12 | 4 | 4.62 | 46.16 | 30 |
| 10 | 12 | 5 | 4.51 | 45.10 | 30 |
| 10 | 12 | 10 | 3.98 | 39.80 | 30 |
| 10 | 12 | 20 | 2.92 | 29.19 | 30 |
| 10 | 15 | 0 | 5.81 | 58.14 | 30 |
| 10 | 15 | 4 | 5.39 | 53.90 | 30 |
| 10 | 15 | 5 | 5.28 | 52.84 | 30 |
| 10 | 15 | 10 | 4.75 | 47.54 | 30 |
| 10 | 15 | 20 | 3.69 | 36.93 | 30 |
| 11 | 6 | 0 | 2.95 | 26.86 | 30 |
| 11 | 6 | 4 | 2.49 | 22.68 | 30 |
| 11 | 6 | 5 | 2.38 | 21.63 | 30 |
| 11 | 6 | 10 | 1.80 | 16.40 | 30 |
| 11 | 6 | 20 | -.65 | -5.95 | 25 |
| 11 | 8 | 0 | 3.40 | 30.94 | 30 |
| 11 | 8 | 4 | 2.94 | 26.76 | 30 |
| 11 | 8 | 5 | 2.83 | 25.71 | 30 |
| 11 | 8 | 10 | 2.25 | 20.48 | 30 |
| 11 | 8 | 20 | 1.10 | 10.03 | 30 |
| 11 | 10 | 0 | 3.85 | 35.02 | 30 |
| 11 | 10 | 4 | 3.39 | 30.84 | 30 |
| 11 | 10 | 5 | 3.28 | 29.79 | 30 |
| 11 | 10 | 10 | 2.70 | 24.57 | 30 |
| 11 | 10 | 20 | 1.55 | 14.11 | 30 |
| 11 | 12 | 0 | 4.30 | 39.10 | 30 |
| 11 | 12 | 4 | 3.84 | 34.92 | 30 |
| 11 | 12 | 5 | 3.73 | 33.87 | 30 |
| 11 | 12 | 10 | 3.15 | 28.65 | 30 |
| 11 | 12 | 20 | 2.00 | 18.19 | 30 |
| 11 | 15 | 0 | 4.97 | 45.22 | 30 |
| 11 | 15 | 4 | 4.51 | 41.04 | 30 |
| 11 | 15 | 5 | 4.40 | 40.00 | 30 |
| 11 | 15 | 10 | 3.82 | 34.77 | 30 |
| 11 | 15 | 20 | 2.67 | 24.31 | 30 |
| 12 | 6 | 0 | 2.50 | 20.80 | 30 |
| 12 | 6 | 4 | 2.00 | 16.67 | 30 |
| 12 | 6 | 5 | 1.88 | 15.63 | 30 |
| 12 | 6 | 10 | 1.25 | 10.46 | 30 |
| 12 | 6 | 20 | -1.05 | -8.75 | 25 |
| 12 | 8 | 0 | 2.89 | 24.05 | 30 |
| 12 | 8 | 4 | 2.39 | 19.92 | 30 |

Table 4. Optimum Rotation and Capitalized Value With Annual Equivalent, Site Index 70 Land, Specified Interest Rates, Pulpwood Prices and Establishment Costs, Y-LT Watershed, 1974. (Continued)

| Interest Rate | Price Per Cord | Establishment Cost | Annual Equivalent | Capitalized Value | Optimum Rotation |
|---|---|---|---|---|---|
| -percent- | | ----------dollars---------- | | | --years-- |
| 12 | 8 | 5 | 2.27 | 18.88 | 30 |
| 12 | 8 | 10 | 1.65 | 13.71 | 30 |
| 12 | 8 | 20 | -.55 | -4.58 | 25 |
| 12 | 10 | 0 | 3.28 | 27.31 | 30 |
| 12 | 10 | 4 | 2.78 | 23.17 | 30 |
| 12 | 10 | 5 | 2.66 | 22.13 | 30 |
| 12 | 10 | 10 | 2.04 | 16.96 | 30 |
| 12 | 10 | 20 | -.05 | -.41 | 25 |
| 12 | 12 | 0 | 3.67 | 30.56 | 30 |
| 12 | 12 | 4 | 3.17 | 26.42 | 30 |
| 12 | 12 | 5 | 3.05 | 25.38 | 30 |
| 12 | 12 | 10 | 2.43 | 20.21 | 30 |
| 12 | 12 | 20 | 1.18 | 9.87 | 30 |
| 12 | 15 | 0 | 4.25 | 35.43 | 30 |
| 12 | 15 | 4 | 3.76 | 31.30 | 30 |
| 12 | 15 | 5 | 3.63 | 30.26 | 30 |
| 12 | 15 | 10 | 3.01 | 25.09 | 30 |
| 12 | 15 | 20 | 1.77 | 14.74 | 30 |

Table 5. Optimum Rotation and Capitalized Value With Annual Equivalent, Site Index 80 Land, Specified Interest Rates, Pulpwood Prices and Establishment Costs, Y-LT Watershed, 1974.

| Interest Rate | Price Per Cord | Establishment Cost | Annual Equivalent | Capitalized Value | Optimum Rotation |
|---|---|---|---|---|---|
| -percent- | | ----------dollars---------- | | | --years-- |
| 6 | 6 | 0 | 12.43 | 207.24 | 40 |
| 6 | 6 | 4 | 12.17 | 202.81 | 40 |
| 6 | 6 | 5 | 12.10 | 201.70 | 40 |
| 6 | 6 | 10 | 11.77 | 196.16 | 40 |
| 6 | 6 | 20 | 11.11 | 185.09 | 40 |
| 6 | 8 | 0 | 13.32 | 222.05 | 40 |
| 6 | 8 | 4 | 13.06 | 217.62 | 40 |
| 6 | 8 | 5 | 12.99 | 216.51 | 40 |
| 6 | 8 | 10 | 12.66 | 210.97 | 40 |
| 6 | 8 | 20 | 11.99 | 199.90 | 40 |
| 6 | 10 | 0 | 14.21 | 236.86 | 40 |
| 6 | 10 | 4 | 13.95 | 232.43 | 40 |
| 6 | 10 | 5 | 13.88 | 231.32 | 40 |
| 6 | 10 | 10 | 13.55 | 225.78 | 40 |
| 6 | 10 | 20 | 12.88 | 214.70 | 40 |
| 6 | 12 | 0 | 15.10 | 251.67 | 40 |
| 6 | 12 | 4 | 14.83 | 247.24 | 40 |
| 6 | 12 | 5 | 14.77 | 246.13 | 40 |
| 6 | 12 | 10 | 14.44 | 240.59 | 40 |
| 6 | 12 | 20 | 13.77 | 229.51 | 40 |
| 6 | 15 | 0 | 16.43 | 273.88 | 40 |
| 6 | 15 | 4 | 16.17 | 269.45 | 40 |
| 6 | 15 | 5 | 16.10 | 268.34 | 40 |
| 6 | 15 | 10 | 15.77 | 262.81 | 40 |

Table 5. Optimum Rotation and Capitalized Value With Annual Equivalent, Site Index 80 Land Specified Interest Rates, Pulpwood Prices and Establishment Costs, Y-LT Watershed, 1974. (Continued)

| Interest Rate | Price Per Cord | Establishment Cost | Annual Equivalent | Capitalized Value | Optimum Rotation |
|---|---|---|---|---|---|
| -percent- | | ----------dollars---------- | | | --years- |
| 6 | 15 | 20 | 15.10 | 251.73 | 40 |
| 7 | 6 | 0 | 10.26 | 146.62 | 40 |
| 7 | 6 | 4 | 9.96 | 142.33 | 40 |
| 7 | 6 | 5 | 9.89 | 141.26 | 40 |
| 7 | 6 | 10 | 9.51 | 135.90 | 40 |
| 7 | 6 | 20 | 8.76 | 125.18 | 40 |
| 7 | 8 | 0 | 11.07 | 158.14 | 40 |
| 7 | 8 | 4 | 10.77 | 153.85 | 40 |
| 7 | 8 | 5 | 10.69 | 152.78 | 40 |
| 7 | 8 | 10 | 10.32 | 147.42 | 40 |
| 7 | 8 | 20 | 9.57 | 136.71 | 40 |
| 7 | 10 | 0 | 11.88 | 169.67 | 40 |
| 7 | 10 | 4 | 11.58 | 165.38 | 40 |
| 7 | 10 | 5 | 11.50 | 164.31 | 40 |
| 7 | 10 | 10 | 11.13 | 158.95 | 40 |
| 7 | 10 | 20 | 10.38 | 148.23 | 40 |
| 7 | 12 | 0 | 12.68 | 181.19 | 40 |
| 7 | 12 | 4 | 12.38 | 176.90 | 40 |
| 7 | 12 | 5 | 12.31 | 175.83 | 40 |
| 7 | 12 | 10 | 11.93 | 170.47 | 40 |
| 7 | 12 | 20 | 11.18 | 159.76 | 40 |
| 7 | 15 | 0 | 13.89 | 198.48 | 40 |
| 7 | 15 | 4 | 13.59 | 194.19 | 40 |
| 7 | 15 | 5 | 13.52 | 193.12 | 40 |
| 7 | 15 | 10 | 13.14 | 187.76 | 40 |
| 7 | 15 | 20 | 12.39 | 177.05 | 40 |
| 8 | 6 | 0 | 8.46 | 105.81 | 40 |
| 8 | 6 | 4 | 8.13 | 101.62 | 40 |
| 8 | 6 | 5 | 8.05 | 100.57 | 40 |
| 8 | 6 | 10 | 7.63 | 95.33 | 40 |
| 8 | 6 | 20 | 6.79 | 84.85 | 40 |
| 8 | 8 | 0 | 9.20 | 114.94 | 40 |
| 8 | 8 | 4 | 8.86 | 110.75 | 40 |
| 8 | 8 | 5 | 8.78 | 109.70 | 40 |
| 8 | 8 | 10 | 8.36 | 104.46 | 40 |
| 8 | 8 | 20 | 7.52 | 93.98 | 40 |
| 8 | 10 | 0 | 9.93 | 124.07 | 40 |
| 8 | 10 | 4 | 9.59 | 119.88 | 40 |
| 8 | 10 | 5 | 9.51 | 118.83 | 40 |
| 8 | 10 | 10 | 9.09 | 113.59 | 40 |
| 8 | 10 | 20 | 8.25 | 103.10 | 40 |
| 8 | 12 | 0 | 10.66 | 133.20 | 40 |
| 8 | 12 | 4 | 10.32 | 129.01 | 40 |
| 8 | 12 | 5 | 10.24 | 127.96 | 40 |
| 8 | 12 | 10 | 9.82 | 122.72 | 40 |
| 8 | 12 | 20 | 8.98 | 112.23 | 40 |
| 8 | 15 | 0 | 11.75 | 146.89 | 40 |
| 8 | 15 | 4 | 11.42 | 142.70 | 40 |
| 8 | 15 | 5 | 11.33 | 141.65 | 40 |
| 8 | 15 | 10 | 10.91 | 136.41 | 40 |

Table 5. Optimum Rotation and Capitalized Value With Annual Equivalent, Site Index 80 Land, Specified Interest Rates, Pulpwood Prices and Establishment Costs, Y-LT Watershed, 1974. (Continued)

| Interest Rate | Price Per Cord | Establishment Cost | Annual Equivalent | Capitalized Value | Optimum Rotation |
|---|---|---|---|---|---|
| -percent- | | ----------dollars---------- | | | --years-- |
| 8 | 15 | 20 | 10.07 | 125.93 | 40 |
| 9 | 6 | 0 | 6.98 | 77.60 | 40 |
| 9 | 6 | 4 | 6.61 | 73.47 | 40 |
| 9 | 6 | 5 | 6.52 | 72.44 | 40 |
| 9 | 6 | 10 | 6.05 | 67.27 | 40 |
| 9 | 6 | 20 | 5.12 | 56.94 | 40 |
| 9 | 8 | 0 | 7.64 | 84.93 | 40 |
| 9 | 8 | 4 | 7.27 | 80.80 | 40 |
| 9 | 8 | 5 | 7.18 | 79.77 | 40 |
| 9 | 8 | 10 | 6.71 | 74.60 | 40 |
| 9 | 8 | 20 | 5.78 | 64.27 | 40 |
| 9 | 10 | 0 | 8.30 | 92.26 | 40 |
| 9 | 10 | 4 | 7.93 | 88.13 | 40 |
| 9 | 10 | 5 | 7.84 | 87.09 | 40 |
| 9 | 10 | 10 | 7.37 | 81.93 | 40 |
| 9 | 10 | 20 | 6.44 | 71.60 | 40 |
| 9 | 12 | 0 | 8.97 | 99.71 | 30 |
| 9 | 12 | 4 | 8.59 | 95.46 | 40 |
| 9 | 12 | 5 | 8.50 | 94.42 | 40 |
| 9 | 12 | 10 | 8.03 | 89.26 | 40 |
| 9 | 12 | 20 | 7.10 | 78.93 | 40 |
| 9 | 15 | 0 | 10.18 | 113.16 | 30 |
| 9 | 15 | 4 | 9.79 | 108.83 | 30 |
| 9 | 15 | 5 | 9.70 | 107.75 | 30 |
| 9 | 15 | 10 | 9.21 | 102.34 | 30 |
| 9 | 15 | 20 | 8.24 | 91.53 | 30 |
| 10 | 6 | 0 | 5.77 | 57.70 | 40 |
| 10 | 6 | 4 | 5.36 | 53.61 | 40 |
| 10 | 6 | 5 | 5.26 | 52.58 | 40 |
| 10 | 6 | 10 | 4.75 | 47.47 | 40 |
| 10 | 6 | 20 | 3.72 | 37.25 | 40 |
| 10 | 8 | 0 | 6.36 | 63.64 | 40 |
| 10 | 8 | 4 | 5.96 | 59.55 | 40 |
| 10 | 8 | 5 | 5.85 | 58.53 | 40 |
| 10 | 8 | 10 | 5.34 | 53.42 | 40 |
| 10 | 8 | 20 | 4.32 | 43.19 | 40 |
| 10 | 10 | 0 | 7.04 | 70.41 | 30 |
| 10 | 10 | 4 | 6.62 | 66.17 | 30 |
| 10 | 10 | 5 | 6.51 | 65.11 | 30 |
| 10 | 10 | 10 | 5.98 | 59.80 | 30 |
| 10 | 10 | 20 | 4.92 | 49.19 | 30 |
| 10 | 12 | 0 | 7.76 | 77.57 | 30 |
| 10 | 12 | 4 | 7.33 | 73.33 | 30 |
| 10 | 12 | 5 | 7.23 | 72.27 | 30 |
| 10 | 12 | 10 | 6.70 | 66.97 | 30 |
| 10 | 12 | 20 | 5.64 | 56.36 | 30 |
| 10 | 15 | 0 | 8.83 | 88.32 | 30 |
| 10 | 15 | 4 | 8.41 | 84.08 | 30 |
| 10 | 15 | 5 | 8.30 | 83.02 | 30 |
| 10 | 15 | 10 | 7.77 | 77.71 | 30 |

Table 5. Optimum Rotation and Capitalized Value With Annual Equivalent, Site Index 80 Land, Specified Interest Rates, Pulpwood Prices and Establishment Costs, Y-LT Watershed, 1974. (Continued)

| Interest Rate | Price Per Cord | Establishment Cost | Annual Equivalent | Capitalized Value | Optimun Rotation |
|---|---|---|---|---|---|
| -percent- | | ----------dollars---------- | | | --years- |
| 10 | 15 | 20 | 6.71 | 67.11 | 30 |
| 11 | 6 | 0 | 4.80 | 43.60 | 30 |
| 11 | 6 | 4 | 4.34 | 39.42 | 30 |
| 11 | 6 | 5 | 4.22 | 38.37 | 30 |
| 11 | 6 | 10 | 3.66 | 33.27 | 40 |
| 11 | 6 | 20 | 2.54 | 23.11 | 40 |
| 11 | 8 | 0 | 5.43 | 49.38 | 30 |
| 11 | 8 | 4 | 4.97 | 45.20 | 30 |
| 11 | 8 | 5 | 4.86 | 44.15 | 30 |
| 11 | 8 | 10 | 4.28 | 38.93 | 30 |
| 11 | 8 | 20 | 3.13 | 28.47 | 30 |
| 11 | 10 | 0 | 6.07 | 55.16 | 30 |
| 11 | 10 | 4 | 5.61 | 50.98 | 30 |
| 11 | 10 | 5 | 5.49 | 49.94 | 30 |
| 11 | 10 | 10 | 4.92 | 44.71 | 30 |
| 11 | 10 | 20 | 3.77 | 34.25 | 30 |
| 11 | 12 | 0 | 6.70 | 60.95 | 30 |
| 11 | 12 | 4 | 6.24 | 56.76 | 30 |
| 11 | 12 | 5 | 6.13 | 55.72 | 30 |
| 11 | 15 | 0 | 7.66 | 69.62 | 30 |
| 11 | 15 | 4 | 7.20 | 65.43 | 30 |
| 11 | 15 | 5 | 7.08 | 64.39 | 30 |
| 11 | 15 | 10 | 6.51 | 59.16 | 30 |
| 11 | 15 | 20 | 5.36 | 48.70 | 30 |
| 12 | 6 | 0 | 4.10 | 34.17 | 30 |
| 12 | 6 | 4 | 3.60 | 30.03 | 30 |
| 12 | 6 | 5 | 3.48 | 29.00 | 30 |
| 12 | 6 | 10 | 2.86 | 23.83 | 30 |
| 12 | 6 | 20 | 1.62 | 13.48 | 30 |
| 12 | 8 | 0 | 4.66 | 38.87 | 30 |
| 12 | 8 | 4 | 4.17 | 34.74 | 30 |
| 12 | 8 | 5 | 4.04 | 33.70 | 30 |
| 12 | 8 | 10 | 3.42 | 28.53 | 30 |
| 12 | 8 | 20 | 2.18 | 18.18 | 30 |
| 12 | 10 | 0 | 5.23 | 43.58 | 30 |
| 12 | 10 | 4 | 4.73 | 39.44 | 30 |
| 12 | 10 | 5 | 4.61 | 38.41 | 30 |
| 12 | 10 | 10 | 3.99 | 33.23 | 30 |
| 12 | 10 | 20 | 2.75 | 22.89 | 30 |
| 12 | 12 | 0 | 5.79 | 48.28 | 30 |
| 12 | 12 | 4 | 5.30 | 44.14 | 30 |
| 12 | 12 | 5 | 5.17 | 43.11 | 30 |
| 12 | 12 | 10 | 4.55 | 37.94 | 30 |
| 12 | 12 | 20 | 3.31 | 27.59 | 30 |
| 12 | 15 | 0 | 6.64 | 55.34 | 30 |
| 12 | 15 | 4 | 6.14 | 51.20 | 30 |
| 12 | 15 | 5 | 6.02 | 50.16 | 30 |
| 12 | 15 | 10 | 5.40 | 44.99 | 30 |
| 12 | 15 | 20 | 4.16 | 34.65 | 30 |

Table 6. Optimum Rotation and Capitalized Value With Annual Equivalent, Site Index 90 Land, Specified Interest Rates, Pulpwood Prices and Establishment Costs, Y-LT Watershed, 1974.

| Interest Rate | Price Per Cord | Establishment Cost | Annual Equivalent | Capitalized Value | Optimum Rotation |
|---|---|---|---|---|---|
| -percent- | | ----------dollars---------- | | | --years-- |
| 6 | 6 | 0 | 16.79 | 279.87 | 40 |
| 6 | 6 | 4 | 16.53 | 275.44 | 40 |
| 6 | 6 | 5 | 16.46 | 274.33 | 40 |
| 6 | 6 | 10 | 16.13 | 268.79 | 40 |
| 6 | 6 | 20 | 15.46 | 257.72 | 40 |
| 6 | 8 | 0 | 17.68 | 294.69 | 40 |
| 6 | 8 | 4 | 17.42 | 290.26 | 40 |
| 6 | 8 | 5 | 17.35 | 289.16 | 40 |
| 6 | 8 | 10 | 17.02 | 283.62 | 40 |
| 6 | 8 | 20 | 16.35 | 272.54 | 40 |
| 6 | 10 | 0 | 18.57 | 309.52 | 40 |
| 6 | 10 | 4 | 18.31 | 305.09 | 40 |
| 6 | 10 | 5 | 18.24 | 303.98 | 40 |
| 6 | 10 | 10 | 17.91 | 298.44 | 40 |
| 6 | 10 | 20 | 17.24 | 287.36 | 40 |
| 6 | 12 | 0 | 19.46 | 324.34 | 40 |
| 6 | 12 | 4 | 19.19 | 319.91 | 40 |
| 6 | 12 | 5 | 19.13 | 318.80 | 40 |
| 6 | 12 | 10 | 18.80 | 313.26 | 40 |
| 6 | 12 | 20 | 18.13 | 302.19 | 40 |
| 6 | 15 | 0 | 20.79 | 346.58 | 40 |
| 6 | 15 | 4 | 20.53 | 342.15 | 40 |
| 6 | 15 | 5 | 20.46 | 341.04 | 40 |
| 6 | 15 | 10 | 20.13 | 335.50 | 40 |
| 6 | 15 | 20 | 19.47 | 324.42 | 40 |
| 7 | 6 | 0 | 13.86 | 197.97 | 40 |
| 7 | 6 | 4 | 13.56 | 193.69 | 40 |
| 7 | 6 | 5 | 13.48 | 192.61 | 40 |
| 7 | 6 | 10 | 13.11 | 187.26 | 40 |
| 7 | 6 | 20 | 12.36 | 176.54 | 40 |
| 7 | 8 | 0 | 14.66 | 209.49 | 40 |
| 7 | 8 | 4 | 14.36 | 205.20 | 40 |
| 7 | 8 | 5 | 14.29 | 204.13 | 40 |
| 7 | 8 | 10 | 13.91 | 198.77 | 40 |
| 7 | 8 | 20 | 13.16 | 188.06 | 40 |
| 7 | 10 | 0 | 15.47 | 221.01 | 40 |
| 7 | 10 | 4 | 15.17 | 216.72 | 40 |
| 7 | 10 | 5 | 15.10 | 215.65 | 40 |
| 7 | 10 | 10 | 14.72 | 210.29 | 40 |
| 7 | 10 | 20 | 13.97 | 199.58 | 40 |
| 7 | 12 | 0 | 16.28 | 232.53 | 40 |
| 7 | 12 | 4 | 15.98 | 228.24 | 40 |
| 7 | 12 | 5 | 15.90 | 227.17 | 40 |
| 7 | 12 | 10 | 15.53 | 221.81 | 40 |
| 7 | 12 | 20 | 14.78 | 211.10 | 40 |
| 7 | 15 | 0 | 17.49 | 249.80 | 40 |
| 7 | 15 | 4 | 17.19 | 245.52 | 40 |
| 7 | 15 | 5 | 17.11 | 244.45 | 40 |
| 7 | 15 | 10 | 16.74 | 239.09 | 40 |
| 7 | 15 | 20 | 15.99 | 228.37 | 40 |

Table 6. Optimum Rotation and Capitalized Value With Annual Equivalent, Site Index 90 Land, Specified Interest Rates, Pulpwood Prices and Establishment Costs, Y-LT Watershed, 1974. (Continued)

| Interest Rate | Price Per Cord | Establishment Cost | Annual Equivalent | Capitalized Value | Optimum Rotation |
|---|---|---|---|---|---|
| -percent- | | ----------dollars---------- | | | --years-- |
| 8 | 6 | 0 | 11.42 | 142.71 | 40 |
| 8 | 6 | 4 | 11.08 | 138.52 | 40 |
| 8 | 6 | 5 | 11.00 | 137.47 | 40 |
| 8 | 6 | 10 | 10.58 | 132.23 | 40 |
| 8 | 6 | 20 | 9.74 | 121.74 | 40 |
| 8 | 8 | 0 | 12.15 | 151.82 | 40 |
| 8 | 8 | 4 | 11.81 | 147.62 | 40 |
| 8 | 8 | 5 | 11.73 | 146.57 | 40 |
| 8 | 8 | 10 | 11.31 | 141.33 | 40 |
| 8 | 8 | 20 | 10.47 | 130.85 | 40 |
| 8 | 10 | 0 | 12.87 | 160.92 | 40 |
| 8 | 10 | 4 | 12.54 | 156.73 | 40 |
| 8 | 10 | 5 | 12.45 | 155.68 | 40 |
| 8 | 10 | 10 | 12.04 | 150.44 | 40 |
| 8 | 10 | 20 | 11.20 | 139.96 | 40 |
| 8 | 12 | 0 | 13.60 | 170.03 | 40 |
| 8 | 12 | 4 | 13.27 | 165.84 | 40 |
| 8 | 12 | 5 | 13.18 | 164.79 | 40 |
| 8 | 12 | 10 | 12.76 | 159.55 | 40 |
| 8 | 12 | 20 | 11.93 | 149.06 | 40 |
| 8 | 15 | 0 | 15.05 | 188.16 | 25 |
| 8 | 15 | 4 | 14.68 | 183.48 | 25 |
| 8 | 15 | 5 | 14.58 | 182.31 | 25 |
| 8 | 15 | 10 | 14.12 | 176.45 | 25 |
| 8 | 15 | 20 | 13.18 | 164.74 | 25 |
| 9 | 6 | 0 | 9.40 | 104.42 | 40 |
| 9 | 6 | 4 | 9.03 | 100.29 | 40 |
| 9 | 6 | 5 | 8.93 | 99.26 | 40 |
| 9 | 6 | 10 | 8.47 | 94.09 | 40 |
| 9 | 6 | 20 | 7.54 | 83.77 | 40 |
| 9 | 8 | 0 | 10.05 | 111.72 | 40 |
| 9 | 8 | 4 | 9.68 | 107.59 | 40 |
| 9 | 8 | 5 | 9.59 | 106.55 | 40 |
| 9 | 8 | 10 | 9.12 | 101.39 | 40 |
| 9 | 8 | 20 | 8.20 | 91.06 | 40 |
| 9 | 10 | 0 | 10.82 | 120.18 | 25 |
| 9 | 10 | 4 | 10.41 | 115.65 | 25 |
| 9 | 10 | 5 | 10.31 | 114.52 | 25 |
| 9 | 10 | 10 | 9.80 | 108.86 | 25 |
| 9 | 10 | 20 | 8.85 | 98.35 | 40 |
| 9 | 12 | 0 | 11.77 | 130.78 | 25 |
| 9 | 12 | 4 | 11.36 | 126.25 | 25 |
| 9 | 12 | 5 | 11.26 | 125.12 | 25 |
| 9 | 12 | 10 | 10.75 | 119.47 | 25 |
| 9 | 12 | 20 | 9.73 | 108.15 | 25 |
| 9 | 15 | 0 | 13.20 | 146.68 | 25 |
| 9 | 15 | 4 | 12.79 | 142.16 | 25 |
| 9 | 15 | 5 | 12.69 | 141.03 | 25 |
| 9 | 15 | 10 | 12.18 | 135.37 | 25 |
| 9 | 15 | 20 | 11.17 | 124.06 | 25 |

**Table 6. Optimum Rotation and Capitalized Value With Annual Equivalent, Site Index 90 Land, Specified Interest Rates, Pulpwood Prices and Establishment Costs, Y-LT Watershed, 1974. (Continued)**

| Interest Rate | Price Per Cord | Establishment Cost | Annual Equivalent | Capitalized Value | Optimum Rotation |
|---|---|---|---|---|---|
| -percent- | | ----------dollars---------- | | | --years-- |
| 10 | 6 | 0 | 7.75 | 77.48 | 25 |
| 10 | 6 | 4 | 7.33 | 73.28 | 40 |
| 10 | 6 | 5 | 7.23 | 72.26 | 40 |
| 10 | 6 | 10 | 6.71 | 67.15 | 40 |
| 10 | 6 | 20 | 5.69 | 56.92 | 40 |
| 10 | 8 | 0 | 8.60 | 85.95 | 25 |
| 10 | 8 | 4 | 8.15 | 81.55 | 25 |
| 10 | 8 | 5 | 8.04 | 80.44 | 25 |
| 10 | 8 | 10 | 7.49 | 74.94 | 25 |
| 10 | 8 | 20 | 6.39 | 63.92 | 25 |
| 10 | 10 | 0 | 9.44 | 94.43 | 25 |
| 10 | 10 | 4 | 9.00 | 90.02 | 25 |
| 10 | 10 | 5 | 8.89 | 88.92 | 25 |
| 10 | 10 | 10 | 8.34 | 83.41 | 25 |
| 10 | 10 | 20 | 7.24 | 72.39 | 25 |
| 10 | 12 | 0 | 10.29 | 102.90 | 25 |
| 10 | 12 | 4 | 9.85 | 98.49 | 25 |
| 10 | 12 | 5 | 9.74 | 97.39 | 25 |
| 10 | 12 | 10 | 9.19 | 91.88 | 25 |
| 10 | 12 | 20 | 8.09 | 80.87 | 25 |
| 10 | 15 | 0 | 11.56 | 115.61 | 25 |
| 10 | 15 | 4 | 11.12 | 111.20 | 25 |
| 10 | 15 | 5 | 11.01 | 110.10 | 25 |
| 10 | 15 | 10 | 10.46 | 104.59 | 25 |
| 10 | 15 | 20 | 9.36 | 93.58 | 25 |
| 11 | 6 | 0 | 6.73 | 61.18 | 25 |
| 11 | 6 | 4 | 6.25 | 56.86 | 25 |
| 11 | 6 | 5 | 6.14 | 55.78 | 25 |
| 11 | 6 | 10 | 5.54 | 50.39 | 25 |
| 11 | 6 | 20 | 4.36 | 39.59 | 25 |
| 11 | 8 | 0 | 7.48 | 68.01 | 25 |
| 11 | 8 | 4 | 7.01 | 63.70 | 25 |
| 11 | 8 | 5 | 6.89 | 62.62 | 25 |
| 11 | 8 | 10 | 6.29 | 57.22 | 25 |
| 11 | 8 | 20 | 5.11 | 46.43 | 25 |
| 11 | 10 | 0 | 8.23 | 74.85 | 25 |
| 11 | 10 | 4 | 7.76 | 70.53 | 25 |
| 11 | 10 | 5 | 7.64 | 69.45 | 25 |
| 11 | 10 | 10 | 7.05 | 64.05 | 25 |
| 11 | 10 | 20 | 5.86 | 53.26 | 25 |
| 11 | 12 | 0 | 8.98 | 81.68 | 25 |
| 11 | 12 | 4 | 8.51 | 77.36 | 25 |
| 11 | 12 | 5 | 8.39 | 76.28 | 25 |
| 11 | 12 | 10 | 7.80 | 70.89 | 25 |
| 11 | 12 | 20 | 6.61 | 60.09 | 25 |
| 11 | 15 | 0 | 10.11 | 91.93 | 25 |
| 11 | 15 | 4 | 9.64 | 87.61 | 25 |
| 11 | 15 | 5 | 9.52 | 86.53 | 25 |
| 11 | 15 | 10 | 8.92 | 81.14 | 25 |
| 11 | 15 | 20 | 7.74 | 70.34 | 25 |

Table 6. Optimum Rotation and Capitalized Value With Annual Equivalent, Site Index 90 Land, Specified Interest Rates, Pulpwood Prices and Establishment Costs, Y-LT Watershed, 1974. (Continued)

| Interest Rate | Price Per Cord | Establishment Cost | Annual Equivalent | Capitalized Value | Optimum Rotation |
|---|---|---|---|---|---|
| -percent- | | ----------dollars---------- | | | --years-- |
| 12 | 6 | 0 | 5.84 | 48.66 | 25 |
| 12 | 6 | 4 | 5.33 | 44.41 | 25 |
| 12 | 6 | 5 | 5.20 | 43.34 | 25 |
| 12 | 6 | 10 | 4.56 | 38.03 | 25 |
| 12 | 6 | 20 | 3.29 | 27.41 | 25 |
| 12 | 8 | 0 | 6.50 | 54.21 | 25 |
| 12 | 8 | 4 | 5.99 | 49.96 | 25 |
| 12 | 8 | 5 | 5.87 | 48.90 | 25 |
| 12 | 8 | 10 | 5.23 | 43.58 | 25 |
| 12 | 8 | 20 | 3.95 | 32.96 | 25 |
| 12 | 10 | 0 | 7.17 | 59.76 | 25 |
| 12 | 10 | 4 | 6.66 | 55.51 | 25 |
| 12 | 10 | 5 | 6.53 | 54.45 | 25 |
| 12 | 10 | 10 | 5.90 | 49.13 | 25 |
| 12 | 10 | 20 | 4.62 | 38.51 | 25 |
| 12 | 12 | 0 | 7.84 | 65.31 | 25 |
| 12 | 12 | 4 | 7.33 | 61.06 | 25 |
| 12 | 12 | 5 | 7.20 | 60.00 | 25 |
| 12 | 12 | 10 | 6.56 | 54.69 | 25 |
| 12 | 12 | 20 | 5.29 | 44.06 | 25 |
| 12 | 15 | 0 | 8.84 | 73.64 | 25 |
| 12 | 15 | 4 | 8.33 | 69.39 | 25 |
| 12 | 15 | 5 | 8.20 | 68.33 | 25 |
| 12 | 15 | 10 | 7.56 | 63.01 | 25 |
| 12 | 15 | 20 | 6.29 | 52.39 | 25 |

Table 7. Estimated annual equivalent net return from timber per acre, selected age of stand, by site index and specified conditions[1], Y-LT Watershed, 1974.

| | Site Index | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 60 | | 70 | | 80 | | 90 | |
| Age of Stand | Optimum Rotation | Annual Equiv. from stand age to optimum rotation | Optimum Rotation | Annual Equiv. from stand age to optimum rotation | Optimum Rotation | Annual Equiv. from stand age to optimum rotation | Optimum Rotation | Annual Equiv. from stand age to optimum rotation |
| | years | dollars | years | dollars | years | dollars | years | dollars |
| 0 | 40 | 2.09 | 40 | 3.91 | 40 | 7.52 | 40 | 10.47 |
| 5 | 40 | 5.67 | 40 | 8.40 | 40 | 13.82 | 40 | 18.26 |
| 10 | 40 | 8.62 | 40 | 12.78 | 40 | 21.03 | 40 | 27.77 |
| 13 | 40 | 11.18 | 40 | 16.58 | 40 | 27.27 | 40 | 36.02 |
| 15 | 40 | 13.36 | 40 | 19.81 | 40 | 32.58 | 40 | 43.04 |
| 20 | 40 | 21.34 | 40 | 31.64 | 40 | 47.27 | 40 | 65.16 |

[1] The conditions specified are:
1) Price of pulpwood = $8 per cord
2) Price of sawtimber = $80 per MBF (Scribner scale)
3) Establishment costs = $20 per acre for the "0" stand age
4) Rate of discount = 8% per annum.

# APPENDIX

**Appendix Table 1. Estimated annual costs per acre for mixed permanent pasture, Y-LT Watershed, 1974.**

| Item | Unit | No. of Units | Price per Unit | Amount |
|---|---|---|---|---|
| Direct cost: | | | | |
| Fertilizer | | | | |
| N | Lb. | 51 | $ .15 | $ 7.65 |
| $P_2O_5$ | Lb. | 33 | .18 | 5.94 |
| $K_2O$ | Lb. | 33 | .05 | 1.65 |
| Lime | Cwt. | 6.6 | .60 | 3.96 |
| Tractor & equipment | Ac. | 1.0 | 1.59 | 1.59 |
| Labor | Hr. | .5 | 2.00 | 1.00 |
| Operating Capital | Dol. | 10.85 | .08 | .87 |
| Total direct cost | | | | 22.57 |
| Indirect cost: | | | | |
| Tractor & equipment | | | | $ .91 |
| Pro-rated establishment costs[1] | | | | 5.74 |
| Interest on est. costs[2] | | | | 2.30 |
| Total indirect cost | | | | 8.95 |
| Total cost | | | | $31.52 |

[1]Based on an expected 10-year life of permanent pasture stand after establishment.

[2]Interest at an annual rate of 8% on average investment.

**Appendix Table 2. Estimated annual cost per acre for wheat-ryegrass pasture, Y-LT Watershed, 1974.**

| Item | Unit | Quantity | Price per Unit | Amount |
|---|---|---|---|---|
| Variable expenses | | | | |
| Seed | | | | |
| Ryegrass seed | Lb. | 20.00 | $ .40 | $ 8.00 |
| Wheat seed | Lb. | 90.00 | .10 | 9.00 |
| Fertilizer | | | | |
| Ammonium nitrate | Cwt. | 3.60 | 5.00 | 18.00 |
| Superphosphate | Cwt. | 3.00 | 3.75 | 11.25 |
| Muriate of potash | Cwt. | 1.00 | 3.50 | 3.50 |
| Lime (spread) | Ton | .33 | 12.00 | 4.00 |
| Labor | Hour | 3.00 | 2.00 | 6.00 |
| Tractor equipment | Acre | 1.00 | 8.19 | 8.19 |
| Int. on Op. capital | Acre | 1.00 | 4.83 | 4.83 |
| Total variable expenses | | | | $72.77 |
| Fixed expenses | | | | |
| Tractor and equipment | Acre | 1.00 | 5.95 | 5.95 |
| Total fixed expenses | | | | 5.95 |
| Total specified expenses | | | | 78.72 |

**Appendix Table 3. Estimated establishment cost per acre for mixed permanent pasture, Y-LT Watershed, 1974.**

| Item | Unit | No. of Units | Price per Unit | Amount |
|---|---|---|---|---|
| Seed[1] | Lb. | 29 | $ .68 | $19.72 |
| Fertilizer | | | | |
| N | Lb. | 51 | .15 | 7.65 |
| $P_2O_5$ | Lb. | 33 | .18 | 5.94 |
| $K_2O$ | Lb. | 33 | .05 | 1.65 |
| Lime | Cwt. | 20 | .60 | 12.00 |
| Tractor & equipment | Ac. | 1 | 7.08 | 7.08 |
| Labor | Hour | 1.7 | 2.00 | 3.40 |
| Total cost | | | | $57.39 |

[1]An estimated 25 percent of land must be reseeded. Reseeding costs are also reflected in labor and tractor and equipment costs.

**Appendix Table 4. Schedule of returns and costs for the optimum planted pine timber rotation for Site Index 60 land, Y-LT Watershed.**

| Item | Year | Unit | Quantity | Price | Amount |
|---|---|---|---|---|---|
| | | | | -----dollars----- | |
| Timber Sale: | | | | | |
| Pulpwood | 20 | cord | 5 | 8.00 | 40.00 |
| Pulpwood | 25 | cord | 5 | 8.00 | 40.00 |
| Pulpwood | 30 | cord | 5 | 8.00 | 40.00 |
| Pulpwood | 35 | cord | 3 | 8.00 | 24.00 |
| Sawtimber | 35 | MBF | 1 | 80.00 | 80.00 |
| Pulpwood | 40 | cord | 3 | 8.00 | 24.00 |
| Sawtimber | 40 | MBF | 5 | 80.00 | 400.00 |
| Total Revenue | | | | | 648.00 |
| Establishment Cost Per Acre:[1] | | | | | |
| Situation 1 | 1 | acre | 1 | | 0.00 |
| Situation 2 | 1 | acre | 1 | | 1.00 |
| Situation 3 | 1 | acre | 1 | | 5.00 |
| Situation 4 | 1 | acre | 1 | | 10.00 |
| Situation 5 | 1 | acre | 1 | | 20.00 |
| Returns discounted at 8 percent: | | | | | |
| Capitalized Value | | | | | |
| Situation 1 | | | | | 47.12 |
| Situation 2 | | | | | 42.92 |
| Situation 3 | | | | | 41.88 |
| Situation 4 | | | | | 36.64 |
| Situation 5 | | | | | 26.15 |
| Annual Equivalent | | | | | |
| Situation 1 | | | | | 3.77 |
| Situation 2 | | | | | 3.43 |
| Situation 3 | | | | | 3.35 |
| Situation 4 | | | | | 2.93 |
| Situation 5 | | | | | 2.09 |

[1] Five establishment cost Situations are reported. These costs represent the various cost-share alternatives for all known cost-share programs.

It is assumed that other services associated with growing timber in the Y-LT Area are provided to the landowner at no cost.

**Appendix Table 5. Schedule of returns and costs for the optimum planted pine timber rotation for Site Index 70 land, Y-LT Watershed.**

| Item | Year | Unit | Quantity | Price | Amount |
|---|---|---|---|---|---|
| | | | | -----dollars----- | |
| Timber Sale: | | | | | |
| Pulpwood | 20 | cord | 7 | 8.00 | 56.00 |
| Pulpwood | 25 | cord | 7 | 8.00 | 56.00 |
| Pulpwood | 30 | cord | 3 | 8.00 | 24.00 |
| Sawtivber | 30 | MBF | 1 | 80.00 | 80.00 |
| Pulpwood | 35 | cord | 3 | 8.00 | 24.00 |
| Sawtimber | 35 | MBF | 1 | 80.00 | 80.00 |
| Pulpwood | 40 | cord | 3 | 8.00 | 24.00 |
| Sawtimber | 40 | MBF | 7.6 | 80.00 | 608.00 |
| Total Revenue | | | | | 952.00 |
| Establishment Cost Per Acre:[1] | | | | | |
| Situation 1 | 1 | acre | 1 | | 0.00 |
| Situation 2 | 1 | acre | 1 | | 4.00 |
| Situation 3 | 1 | acre | 1 | | 5.00 |
| Situation 4 | 1 | acre | 1 | | 10.00 |
| Situation 5 | 1 | acre | 1 | | 20.00 |
| Returns discounted at 8 percent: | | | | | |
| Capitalized Value | | | | | |
| Situation 1 | | | | | 69.87 |
| Situation 2 | | | | | 65.68 |
| Situation 3 | | | | | 64.63 |
| Situation 4 | | | | | 59.39 |
| Situation 5 | | | | | 48.90 |
| Annual Equivalent | | | | | |
| Situation 1 | | | | | 5.59 |
| Situation 2 | | | | | 5.25 |
| Situation 3 | | | | | 5.17 |
| Situation 4 | | | | | 4.75 |
| Situation 5 | | | | | 3.91 |

[1] Five establishment cost Situations are reported. These costs represent the various cost-share alternatives for all known cost-share programs.

It is assumed that other services associated with growing timber in the Y-LT Area are provided to the landowner at no cost.

**Appendix Table 6. Schedule of returns and costs for the optimum planted pine timber rotation for Site Index 80 land, Y-LT Watershed.**

| Item | Year | Unit | Quantity | Price | Amount |
|---|---|---|---|---|---|
| | | | | -----dollars----- | |
| Timber Sale: | | | | | |
| Pulpwood | 15 | cord | 4 | 8.00 | 32.00 |
| Pulpwood | 20 | cord | 6 | 8.00 | 48.00 |
| Pulpwood | 25 | cord | 6 | 8.00 | 48.00 |
| Sawtimber | 25 | MBF | 1 | 80.00 | 80.00 |
| Pulpwood | 30 | cord | 5 | 8.00 | 40.00 |
| Sawtimber | 30 | MBF | 1 | 80.00 | 80.00 |
| Pulpwood | 35 | cord | 3 | 8.00 | 24.00 |
| Sawtimber | 35 | MBF | 2.1 | 80.00 | 168.00 |
| Pulpwood | 40 | cord | 5 | 8.00 | 40.00 |
| Sawtimber | 40 | MBF | 11.9 | 80.00 | 952.00 |
| Total Revenue | | | | | 1,512.00 |
| Establishment Cost Per Acre:[1] | | | | | |
| Situation 1 | 1 | acre | 1 | | 0.00 |
| Situation 2 | 1 | acre | 1 | | 4.00 |
| Situation 3 | 1 | acre | 1 | | 5.00 |
| Situation 4 | 1 | acre | 1 | | 10.00 |
| Situation 5 | 1 | acre | 1 | | 20.00 |
| Returns discounted at 8 percent: | | | | | |
| Capitalized Value | | | | | |
| Situation 1 | | | | | 114.94 |
| Situation 2 | | | | | 110.75 |
| Situation 3 | | | | | 109.70 |
| Situation 4 | | | | | 104.46 |
| Situation 5 | | | | | 93.98 |
| Annual Equivalent | | | | | |
| Situation 1 | | | | | 9.20 |
| Situation 2 | | | | | 8.86 |
| Situation 3 | | | | | 8.78 |
| Situation 4 | | | | | 8.36 |
| Situation 5 | | | | | 7.52 |

[1] **Five establishment cost Situations are reported. These costs represent the various cost-share alternatives for all known cost-share programs.**

**It is assumed that other services associated with growing timber in the Y-LT Area are provided to the landowner at no cost.**

**Appendix Table 7. Schedule of returns and costs for the optimum planted pine timber rotation for Site Index 90 land, Y-LT Watershed.**

| Item | Year | Unit | Quantity | Price | Amount |
|---|---|---|---|---|---|
| | | | | | -----dollars----- |
| Timber Sale: | | | | | |
| Pulpwood | 15 | cord | 3 | 8.00 | 24.00 |
| Pulpwood | 20 | cord | 8 | 8.00 | 64.00 |
| Pulpwood | 25 | cord | 5 | 8.00 | 40.00 |
| Sawtimber | 25 | MBF | 1.5 | 80.00 | 120.00 |
| Pulpwood | 30 | cord | 5 | 8.00 | 40.00 |
| Sawtimber | 30 | MBF | 2.5 | 80.00 | 200.00 |
| Pulpwood | 35 | cord | 4 | 8.00 | 32.00 |
| Sawtimber | 35 | MBF | 3.7 | 80.00 | 296.00 |
| Pulpwood | 40 | cord | 4 | 8.00 | 32.00 |
| Sawtimber | 40 | MBF | 14.3 | 80.00 | 1,144.00 |
| Total Revenue | | | | | 1,992.00 |
| Establishment Cost Per Acre:[1] | | | | | |
| Situation 1 | 1 | acre | 1 | | 0.00 |
| Situation 2 | 1 | acre | 1 | | 4.00 |
| Situation 3 | 1 | acre | 1 | | 5.00 |
| Situation 4 | 1 | acre | 1 | | 10.00 |
| Situation 5 | 1 | acre | 1 | | 20.00 |
| Returns discounted at 8 percent: | | | | | |
| Capitalized Value | | | | | |
| Situation 1 | | | | | 151.82 |
| Situation 2 | | | | | 147.62 |
| Situation 3 | | | | | 146.57 |
| Situation 4 | | | | | 141.33 |
| Situation 5 | | | | | 130.85 |
| Annual Equivalent | | | | | |
| Situation 1 | | | | | 12.15 |
| Situation 2 | | | | | 11.81 |
| Situation 3 | | | | | 11.73 |
| Situation 4 | | | | | 11.31 |
| Situation 5 | | | | | 10.47 |

[1] Five establishment cost Situations are reported. These costs represent the various cost-share alternatives for all known cost-share programs.

It is assumed that other services associated with growing timber in the Y-LT Area are provided to the landowner at no cost.

**Appendix Table 8. SITE INDEX 60: Estimated yields per acre of pulpwood and sawtimber when thinned to 70 square feet basal area by rotation length, by age of stand, Y-LT Watershed.**

| Age of Stand | Rotation length in years | | | | | |
|---|---|---|---|---|---|---|
| | 15 | 20 | 25 | 30 | 35 | 40 |
| | ---Pulpwood Cords--- | | | | | |
| 15 | 3 | - | - | - | - | - |
| 20 | | 15 | 5 | 5 | 5 | 5 |
| 25 | | | 15 | 5 | 5 | 5 |
| 30 | | | | 15 | 4 | 5 |
| 35 | | | | | 10 | 3 |
| 40 | | | | | | 3 |
| | Sawtimber[1] Thousand Board Feet | | | | | |
| 35 | | | | | 3.0 | 1.0 |
| 40 | | | | | | 5.0 |

[1] Sawtimber yields in Scribner log scale.

**Appendix Table 9. SITE INDEX 70: Estimated yields per acre of pulpwood and sawtimber when thinned to 70 square feet basal area by rotation length, by age of stand, Y-LT Watershed.**

| Age of Stand | Rotation length in years | | | | | |
|---|---|---|---|---|---|---|
| | 15 | 20 | 25 | 30 | 35 | 40 |
| | ---Pulpwood cords--- | | | | | |
| 15 | 8 | - | - | - | - | - |
| 20 | | 20 | 7 | 7 | 7 | 7 |
| 25 | | | 21 | 7 | 7 | 7 |
| 30 | | | | 13 | 3 | 3 |
| 35 | | | | | 13 | 3 |
| 40 | | | | | | 3 |
| | Sawtimber[1] Thousand Board Feet | | | | | |
| 30 | | | | 4.0 | 1.0 | 1.0 |
| 35 | | | | | 4.0 | 1.0 |
| 40 | | | | | | 7.6 |

[1] Sawtimber yields in Scribner log scale.

**Appendix Table 10. SITE INDEX 80: Estimated yields per acre of pulpwood and sawtimber when thinned to 100 square feet basal area by rotation length, by age of stand, Y-LT Watershed.**

| Age of Stand | Rotation length in years | | | | | |
|---|---|---|---|---|---|---|
| | 15 | 20 | 25 | 30 | 35 | 40 |
| | ---Pulpwood cords--- | | | | | |
| 15 | 12 | 4 | 4 | 4 | 4 | 4 |
| 20 | | 19 | 6 | 6 | 6 | 6 |
| 25 | | | 24 | 6 | 6 | 6 |
| 30 | | | | 17 | 5 | 5 |
| 35 | | | | | 15 | 3 |
| 40 | | | | | | 5 |
| | Sawtimber[1] Thousand Board Feet | | | | | |
| 25 | | | | 1.0 | 1.0 | 1.0 |
| 30 | | | | 5.5 | 1.0 | 1.0 |
| 35 | | | | | 5.0 | 2.1 |
| 40 | | | | | | 11.9 |

[1] Sawtimber yields in Scribner log scale.

**Appendix Table 11. SITE INDEX 90: Estimated yields per acre of pulpwood and sawtimber when thinned to 100 square feet basal area by rotation length, by age of stand, Y-LT Watershed.**

| Age of Stand | Rotation length in years | | | | | |
|---|---|---|---|---|---|---|
| | 15 | 20 | 25 | 30 | 35 | 40 |
| | ---Pulpwood cords---- | | | | | |
| 15 | 16 | 3 | 3 | 3 | 3 | 3 |
| 20 | | 27 | 8 | 8 | 8 | 8 |
| 25 | | | 21 | 5 | 5 | 5 |
| 30 | | | | 22 | 5 | 5 |
| 35 | | | | | 17 | 4 |
| 40 | | | | | | 4 |
| | Sawtimber[1] Thousand Board Feet | | | | | |
| 25 | | | 6.4 | 1.5 | 1.5 | 1.5 |
| 30 | | | | 7.7 | 2.5 | 2.5 |
| 35 | | | | | 9.9 | 3.7 |
| 40 | | | | | | 14.3 |

[1] Sawtimber yields in Scribner log scale.

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