



# Planting and Care of Fine Hardwood Seedlings



**Hardwood Tree Improvement and  
Regeneration Center**

North Central Research Station  
USDA Forest Service

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## Financial and Tax Aspects of Tree Planting

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Trees are planted for many reasons, including landscaping, soil and water conservation, wildlife habitat, and nut and timber production. Altruism motivates many landowners to plant trees. There are, however, those who plant with the expectation of increasing their family's wealth. In this publication I discuss the financial and tax aspects of tree planting projects. The focus is on trees planted for commercial timber production. Other purposes, such as landscaping, are mentioned to distinguish their treatment with the tax treatment of trees planted for commercial timber production. Internal Revenue Code and associated authorities are cited for tax professionals.

### Financial Analysis of Tree Planting

The financial implications of the long time periods involved in recovering tree planting costs and earning an acceptable rate of return on investment are significant. Money spent on tree planting may not be returned by the sale of timber products for decades. In many cases the cost is borne by one generation and the income received by a later generation. If you do not expect to receive income from a tree planting project during your lifetime, it is important to ask if planting trees is financially justified. This is less important if tree planting projects are viewed as a multi-generational activity, or will increase the fair market value of the property. Decisions also can be viewed in broader societal terms – i.e., will society benefit if you plant trees, or would it be better to invest your resources on some other project?

The traditional way to analyze investment options is to conduct detailed discounted cash flow analyses (DCFA). DCFA estimates the net present value of a project using a specified alternative rate of return, or estimates the rate of return actually earned by the project, referred to as the internal rate of return. DCFA requires you to estimate expenses and revenues many years into the future. You also have to estimate timber growth rates, number of trees per acre, timber value, and best years to harvest, among many other assumptions. Benjamin (1996) conducted such an analysis for black walnut plantations and agroforestry projects in Indiana.



A way to quickly assess the potential financial viability of a tree planting project is to compare \$1 invested in tree planting today with the value of timber that this \$1 would need to “grow into” in order to cover the cost of tying up the \$1 in trees instead of an alternative investment. Economists call this an opportunity cost, and for timber production the highest cost is time. What the \$1 would have returned if it were invested somewhere other than tree planting is measured using an assumed interest rate, usually referred to as the alternative rate of return. This rate depends on the other opportunities you have for investing an additional dollar. The procedure described is a first assessment that can be used to determine if a more detailed analysis is justified.

In this discussion, the opportunity cost of time is assumed to be 3 percent per year simple compound interest. This should be considered the desired real rate of return; that is, the return assuming no inflation of expenses and timber values. Table 1 (see page 2) shows the amount by which \$1 would have to increase to cover the opportunity cost measured by interest rates from 1 to 10 percent per year. For example, if you are satisfied with a 3 percent real rate of return on your investments, the value of timber produced by each \$1 of tree planting expense would have to be \$10.64 in 80 years – more than a 10-fold increase. Example 1 demonstrates how Table 1 can be used.

There are no published estimates for the central states of stocking and growth rates for well-man-

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**Table 1.** Value of one dollar compounded at 1% to 10% per year for five to 100 years.

Years	Interest Rate									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
5	\$1.05	\$1.10	\$1.16	\$1.22	\$1.28	\$1.34	\$1.40	\$1.47	\$1.54	\$1.61
10	\$1.10	\$1.22	\$1.34	\$1.48	\$1.63	\$1.79	\$1.97	\$2.16	\$2.37	\$2.59
15	\$1.16	\$1.35	\$1.56	\$1.80	\$2.08	\$2.40	\$2.76	\$3.17	\$3.64	\$4.18
20	\$1.22	\$1.49	\$1.81	\$2.19	\$2.65	\$3.21	\$3.87	\$4.66	\$5.60	\$6.73
25	\$1.28	\$1.64	\$2.09	\$2.67	\$3.39	\$4.29	\$5.43	\$6.85	\$8.62	\$10.83
30	\$1.35	\$1.81	\$2.43	\$3.24	\$4.32	\$5.74	\$7.61	\$10.06	\$13.27	\$17.45
35	\$1.42	\$2.00	\$2.81	\$3.95	\$5.52	\$7.69	\$10.68	\$14.79	\$20.41	\$28.10
40	\$1.49	\$2.21	\$3.26	\$4.80	\$7.04	\$10.29	\$14.97	\$21.72	\$31.41	\$45.26
45	\$1.56	\$2.44	\$3.78	\$5.84	\$8.99	\$13.76	\$21.00	\$31.92	\$48.33	\$72.89
50	\$1.64	\$2.69	\$4.38	\$7.11	\$11.47	\$18.42	\$29.46	\$46.90	\$74.36	\$117.39
55	\$1.73	\$2.97	\$5.08	\$8.65	\$14.64	\$24.65	\$41.32	\$68.91	\$114.41	\$189.06
60	\$1.82	\$3.28	\$5.89	\$10.52	\$18.68	\$32.99	\$57.95	\$101.26	\$176.03	\$304.48
65	\$1.91	\$3.62	\$6.83	\$12.80	\$23.84	\$44.14	\$81.27	\$148.78	\$270.85	\$490.37
70	\$2.01	\$4.00	\$7.92	\$15.57	\$30.43	\$59.08	\$113.99	\$218.61	\$416.73	\$789.75
75	\$2.11	\$4.42	\$9.18	\$18.95	\$38.83	\$79.06	\$159.88	\$321.20	\$641.19	\$1,271.90
80	\$2.22	\$4.88	\$10.64	\$23.05	\$49.56	\$105.80	\$224.23	\$471.95	\$986.55	\$2,048.40
85	\$2.33	\$5.38	\$12.34	\$28.04	\$63.25	\$141.58	\$314.50	\$693.46	\$1,517.93	\$3,298.97
90	\$2.45	\$5.94	\$14.30	\$34.12	\$80.73	\$189.46	\$441.10	\$1,018.92	\$2,335.53	\$5,313.02
95	\$2.57	\$6.56	\$16.58	\$41.51	\$103.03	\$253.55	\$618.67	\$1,497.12	\$3,593.50	\$8,556.68
100	\$2.70	\$7.24	\$19.22	\$50.50	\$131.50	\$339.30	\$867.72	\$2,199.76	\$5,529.04	\$13,780.61



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aged mixed species hardwood forests initiated by planting. Mixed species hardwood plantings are a relatively recent development. The best information is available for black walnut plantations, such as the analysis by Benjamin (1996). There is some published information for natural second-growth mixed hardwood stands. Using this information makes it necessary to assume that a well-managed hardwood plantation will emulate a natural stand of timber by the time of the final harvest. With the right management this is possible. A key consideration is emulating natural stand conditions by keeping the number of trees per acre high enough for the trees to self-prune, and have trunks with the low degree of taper typical for forest-grown trees.

Fisher and Kershaw (1985) reported growth as a function of stocking levels for upland hardwood stands in central and southern Indiana. The maximum growth of 270 board feet per acre per year was for heavily stocked stands – 100 trees and 120 square foot basal area per acre. Basal area is a measure of tree density. The productivity of stands in the glaciated regions of northern Indiana is assumed by foresters to be higher than this figure. The upper end of stocking and growth estimates for well-stocked intensively managed stands is approximately 6 thousand board feet (MBF) per acre and 300 board feet per acre per

year. Well-managed stands should produce higher quality timber, providing an average value of \$600 or more per MBF, compared to the \$413 average assumed in Example 1. Using 6 MBF and \$600 per MBF provides a timber liquidation value of \$3,600 per acre, less than the \$5,351 required for a 3 percent rate of return in Example 1. Thus, an optimist might be willing to argue that a really good planting on a very good site with intensive management for 80 years could provide a 3 percent real rate of return. But what if the timber is not liquidated in year 80?

An alternative valuation approach is to assume that after establishment stands are managed in perpetuity using a 10-year cutting cycle with natural regeneration. This means that every 10 years the stand is evaluated and trees marked for harvest based on thinning requirements for a crop tree selection management program and financial maturity. The value in year 80 of a harvest every 10 years starting in year 50 of 2 to 3 MBF per acre worth \$600 per MBF is approximately \$8,500 and \$12,700.<sup>5</sup> Thus, for these assumptions, a growth rate of 200 board feet per acre per year is more than adequate to provide a 3 percent rate of return for a well-managed stand, based on comparison with the average value of \$5,432 per acre estimated in Example 1.

**Example 1.** John Jones is considering the establishment of a forest on pastureland. The consulting forester told John that the initial cost would be \$350 per acre and \$80 per acre in the next two years to control grass and herbaceous vegetation. John is satisfied with a 3 percent real rate of return on his investments. The total cost for the first three years as of the date of planting can be determined by discounting the two \$80 expenditures back to the time of planting. This makes the total cost of afforestation \$503 per acre.<sup>1</sup> Assuming the timber would be liquidated in 80 years, and a 3 percent rate of return, the appropriate value from Table 1 is \$10.64. Multiplying by \$503 indicates that the value of the timber would have to be \$5,352 per acre. John and his consulting forester evaluate the conditions under which an existing stand of timber is worth at least \$5,352 per acre, and compares these conditions to his using published data and personal experience.

The forest inventory conducted by the U.S. Forest Service estimates that the average acre of timberland in Indiana contains 4.45 thousand board feet (MBF), Doyle-log-scale of timber large enough to be harvested for sawlogs<sup>2</sup> (USFS 2011). This average reflects the balance between total annual growth, mortality and removals for the entire state. An average price for timber sold standing in the forest (stumpage) in 2010 was \$413 per MBF Doyle-log-scale (Hoover 2010). This means that, on average, there is \$1,838<sup>3</sup> worth of timber per acre. The volume and value for a well-managed stand would be much higher. John's planting project and timber management program would have to result in a forest in 80 years that is worth about three times the average current timber value per acre in Indiana, or about equal to a managed forest that achieves an average growth of 162 board feet per acre per year.<sup>4</sup> This is without considering all the other holding and management costs incurred, and intermediate harvests over 80 years. By using the appropriate tax treatments, however, John's planting project can be made more financially viable.

The tax treatment of tree planting projects helps justify them financially. The tax rules for tree planting are discussed next, followed by estimates of the timber values needed to justify tree planting on an after-tax basis.

## Basic Tax Treatment of Tree Planting Expenses

*(NOTE: Tax rules are subject to change at any time by an act of the U.S. Congress and the Internal Revenue Service. For the current tax rules see <http://www.timbertax.org> or *Timber Tax Management for Family Forest Owners* at <http://www.timbertaxadvice.com>)*

The tax treatment of tree planting expenses depends on the primary purpose for which they are planted. The treatments for the major purposes are summarized for making comparisons. Additional detail will be needed for application of these treatments in your case.

### Landscaping

If trees are planted for residential landscaping, the cost is added to the cost of the property improved (Example 2). The cost of property is

referred to as its original basis for income tax purposes. The basis of purchased residential property is the price paid plus the cost of improvements, such as landscaping. The basis is not recovered until the property is sold or suffers a casualty loss.

### Conservation

The cost of planting trees strictly for conservation and environmental purposes – not for the production of income – also would be added to the basis of the property on which they were planted. The only exception is if the property is a farm and the tree planting was part of a soil and water conservation practice approved by the Natural Resources Conservation Service (NRCS) (Example 3). For this purpose a farm is property that produces farm income. Gains from the sale of timber are not included in the definition of farm income for purposes of qualifying for the deduction of soil and water conservation expenses.<sup>7</sup>

### Orchards, Agroforestry, and Silvopastural

Trees planted as an orchard for nut or fruit production are subject to the uniform capitaliza-



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**Example 2.** The Browns, a married couple filing jointly, purchased 5 acres of land for \$50,000. They built a house on the land at a cost of \$150,000. In addition, they paid \$2,500 for landscaping around the house, including \$600 for 300 trees for a windbreak and bird habitat. The total basis of the Brown's residential property is \$202,500 (\$50,000 + \$150,000 + \$2,500). This basis would be used to determine the gain if the property was sold. For example, if they sold the property for \$250,000 they would have a gain of \$47,500 (\$250,000 - \$202,500). In this situation, however, no capital gains tax would have to be paid if they lived in the house. Gains of up to \$500,000 for owner-occupied residential property for a married couple filing a joint return are excluded from taxation.<sup>6</sup>

The basis also is used to determine the deduction for a casualty loss. Assume that a tornado uprooted most of the landscaping trees on the Brown's lot. They hire a real estate appraiser, who determined that immediately before the tornado the fair market value of the entire property was \$280,000 but afterwards its fair market value is \$240,000. The Brown's tax preparer compares the \$40,000 decline in fair market value to the \$202,500 basis of the property. Since the decline in value is less than the basis, the Brown's deductible loss is \$40,000. How much they can actually deduct depends on other factors.

**Example 3.** The Blacks, a married couple, jointly own a cash-grain farm. Their gross income from farming in 2011 was \$60,000. Their Soil and Water Conservation District has a watershed program that encourages farmers to install riparian buffer strips of trees and grass. Their NRCS district conservationist developed a conservation plan for the stream running through their property. Cost-share funds were not available for this project (practice). The Blacks decided to pay the \$18,000 cost themselves. On their 2011 return the Blacks can deduct only \$15,000 as a soil and water conservation expense because the maximum deduction is 25 percent of gross income from farming. The balance of \$3,000 can be carried over for deduction on their 2012 tax return.

tion (UNICAP) rules.<sup>8</sup> This means that all the costs incurred until the trees start to produce a salable crop must be added to the cost basis of the trees. At this point these costs are depreciated – i.e., deducted over a period of years. If trees are consistently planted for both nuts and timber, it is necessary to declare whether the primary purpose is nuts or timber, and treat expenses consistently with this primary purpose. Godsey (2007) discusses the tax treatment of agroforestry projects. These projects combine timber or nut production with row crop agriculture or grazing. Silvopastoral systems may combine timber production with livestock grazing, using species of trees that provide browse and shade. Rotational grazing systems are used to reduce soil compaction. If the trees used in the system are primarily for commercial timber production they would be treated as such for tax purposes.

### **Commercial Timber Production**

Trees planted for commercial timber production as an investment or business are not subject to the UNICAP rules.<sup>9</sup> These costs must be added to an account for recovery when trees in the account are disposed of.<sup>10</sup> These accounts are given specific names. From the time of planting until the trees are big enough to be sold (merchantable), the account is called the plantation or deferred reforestation account. Once the trees are merchantable, the dollars in the plantation account are transferred to a merchantable timber account. Then, when timber is sold, the depletion allowance for the timber sold is determined using the merchantable timber account, as demonstrated in

Example 4. This also is the account used to determine the deduction allowed when timber is stolen, destroyed in a storm or fire, or other casualty loss. Congress, however, has provided favorable exceptions to the basic rule.

## **Exceptions to Basic Tax Treatment for Commercial Timber Production**

### **Reforestation Expensing and Amortization**

There is an exception to the tax treatment for trees planted for the commercial production of timber, demonstrated in Example 4. The 10 percent tax credit, discussed in the 2002 edition of this publication, was eliminated for expenditures paid or incurred after Oct. 22, 2004.<sup>13</sup> The reforestation amortization deduction, however, was retained and expanded,<sup>14</sup> and a new provision was added allowing a limited amount of qualified expenses to be treated as a deductible expense.<sup>15</sup>

### **Election Required**

Both the amortization and expensing deductions require that you make a proper election on a timely filed tax return. For any year in which you claim qualified expenses, the regulations require that you attach a statement to your tax return stating that you are electing to treat qualified expenditures under Internal Revenue Code Section 194. The statement should specify the amount and purpose of each expenditure, and the date when each was incurred. It should also state the type of timber being grown and the purpose for which it is being grown. A separate statement must be included for each qualified timber property (QTP), discussed below, when reforesta-



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**Example 4.** The Smiths planted fast-growing hybrid poplar trees for the commercial production of pulpwood. The total cost for establishment of the 40-acre plantation in 2011 was \$10,000. This \$10,000 expense was placed in a so-called plantation account. The management and operating expenses were deducted annually against other income. For simplicity, assume the cost of fertilizer treatments of \$1,200 in 2015 and \$1,500 in 2020 was added to the balance in the plantation account.<sup>11</sup> The plantation was thinned in 2017 at a cost of \$6,000.<sup>2</sup> In 2024 another thinning was made, but this time the trees removed were large enough to sell as pulpwood. The total amount in the plantation account was \$18,700. The total volume of timber in the plantation at the time of the commercial thinning was estimated to be 1,200 cords based on a timber cruise – i.e., a statistically based sampling of the size and number of trees in the plantation.

Since the timber was merchantable, the plantation account was closed out to the merchantable timber account, with a dollar balance of \$18,700 and a volume balance of 1,200 cords. The logger doing the thinning harvested 400 cords for which he paid \$8,000. The depletion unit is \$15.58 per cord, determined by dividing \$18,700 by 1,200 cords. The taxable gain on the thinning sale would be \$1,768, determined by subtracting the depletion allowance of \$6,232 (400 cords x \$15.58 per cord) from \$8,000.

tion expenditures are being amortized or expensed under Section 194. The election may only be made on a timely return (taking into account extensions of the time for filing) for the taxable year when the qualified expenditures were made.

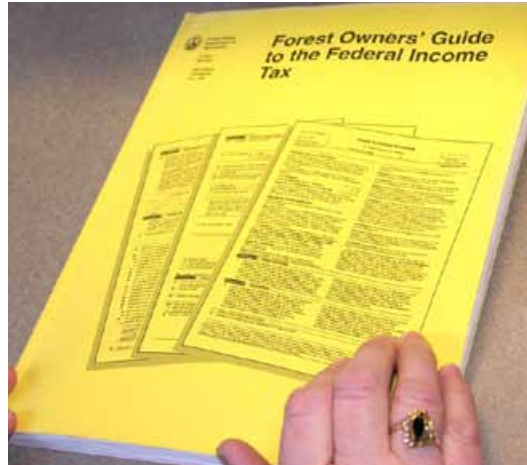
### Qualifications

To qualify for amortization and expensing deductions you must plant the trees for the commercial production of timber. This means that eventually you must expect to sell standing timber, logs produced from the timber, or process these logs in your own business. The tract planted must be at least 1 acre, and located in the United States. If the land planted is titled to a trust the expensing deduction may not be elected. However, amortization may be elected. Land planted while in the control of an estate qualifies for both treatments. The deductible amounts may need to be allocated between the trust or estate, and the beneficiaries thereof. If held as a life estate only the life tenant qualifies.

### Expenses that Qualify

Qualifying expenses are those paid or incurred for any activity or materials directly related to the establishment of a new stand of timber. Although usually referred to as the reforestation amortization and expense deductions, these benefits are not limited to “reforestation” activities; that is, planting on cutover forestland. Expenses for trees planted on land not previously forested qualify. This is referred to as “afforestation.”

Both natural and artificial regeneration qualify. For natural regeneration, the cost of fencing, animal repellents or other means of reducing deer browse or other animal damage would qualify. Qualified expenses also include mechanical barriers or poison to reduce winter damage from rodents; and herbicide, mulch, or other measures to reduce competition from grass, herbaceous plants and undesired species of trees. For artificial regeneration, the cost of seeds, seedlings, planting, weed control and other necessities



qualify. The number of years expenses qualify is usually one or two. It could be longer if weed control is necessary for the survival of the seedlings. The cost for direct seeding also qualifies.

As the owner you cannot pay yourself and count this as a qualifying expenditure. This also applies to your spouse if he or she is also an owner. Assuming that they are not also owners, you may include payments to your children to help with this work, assuming they actually provide meaningful labor.

### Annual Limitations

The total amount that qualifies in any one year for expensing is \$10,000 per taxpayer per QTP. This limit also applies to a corporation, partnership or other type of business, as demonstrated in Example 4. Any amount over \$10,000 qualifies for the amortization deduction, demonstrated in Example 5. There is no limit on the amount of qualified reforestation expenses that can be amortized. The number of QTPs you can have is an unresolved issue that the IRS is apparently waiting to have clarified in the courts. Some tax professionals take the position that \$10,000 per year is an absolute limit regardless of a timber grower's factual circumstances. There is justifica-



**Example 5.** John Jones and his three brothers, Marty, Jack and Bruce, own forestland as tenants in common. They operate as a partnership and allocate all items of income and expense equally. Each brother also owns tracts of timberland individually. In 2011, the partnership incurred \$12,000 of qualified reforestation expenses on one QTP. The partnership elected to expense \$10,000 and amortize \$2,000, the amount by which the expenses exceeded \$10,000. Each partners' distributed share of the expense deduction is \$2,500, and their share of the first year amortization deduction is \$35.71 ( $\$2,000 \times 1/14 \times 1/4$ ).

Jack and his wife also own a farm. In 2011 they initiate an afforestation project on pastureland no longer grazed. Qualified expenses in 2011 for this project were \$25,000. Since this project is a separate QTP, Jack and his wife elect to expense \$10,000 on their 2011 tax return, and amortize \$15,000. Their total expense deduction is \$12,500 ( $\$2,500 + \$10,000$ ), and their amortization deduction for 2011 is \$1,071.43 ( $\$15,000 \times 1/14$ ) plus \$35.71 distributed from the partnership for a total of \$1,107.14.

In 2012 Jack spends \$3,200 for weed control in the pasture planted to trees in 2011. Since this is a new year the \$3,200 can be deducted as a qualified reforestation expense.

**Table 2.** Value of \$1 amortized over 84 months at various interest rates after five to 100 years.<sup>20</sup>

Rotation Age	Interest Rate									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
10	\$1.07	\$1.14	\$1.21	\$1.29	\$1.38	\$1.47	\$1.57	\$1.67	\$1.78	\$1.89
15	\$1.12	\$1.26	\$1.41	\$1.58	\$1.76	\$1.97	\$2.20	\$2.45	\$2.74	\$3.05
20	\$1.18	\$1.39	\$1.63	\$1.92	\$2.25	\$2.63	\$3.08	\$3.61	\$4.21	\$4.91
25	\$1.24	\$1.53	\$1.89	\$2.33	\$2.87	\$3.53	\$4.32	\$5.30	\$6.48	\$7.91
30	\$1.30	\$1.69	\$2.19	\$2.84	\$3.66	\$4.72	\$6.07	\$7.78	\$9.97	\$12.74
35	\$1.37	\$1.87	\$2.54	\$3.45	\$4.67	\$6.31	\$8.51	\$11.44	\$15.34	\$20.52
40	\$1.44	\$2.06	\$2.95	\$4.20	\$5.96	\$8.45	\$11.93	\$16.80	\$23.60	\$33.05
45	\$1.51	\$2.28	\$3.42	\$5.11	\$7.61	\$11.31	\$16.74	\$24.69	\$36.31	\$53.23
50	\$1.59	\$2.51	\$3.96	\$6.22	\$9.72	\$15.13	\$23.47	\$36.28	\$55.87	\$85.73
55	\$1.67	\$2.78	\$4.59	\$7.56	\$12.40	\$20.25	\$32.92	\$53.31	\$85.96	\$138.06
60	\$1.75	\$3.06	\$5.32	\$9.20	\$15.83	\$27.10	\$46.17	\$78.32	\$132.26	\$222.35
65	\$1.84	\$3.38	\$6.17	\$11.19	\$20.20	\$36.26	\$64.76	\$115.08	\$203.50	\$358.10
70	\$1.94	\$3.73	\$7.15	\$13.62	\$25.78	\$48.53	\$90.83	\$169.10	\$313.11	\$576.72
75	\$2.04	\$4.12	\$8.29	\$16.57	\$32.90	\$64.94	\$127.40	\$248.46	\$481.76	\$928.82
80	\$2.14	\$4.55	\$9.61	\$20.16	\$41.99	\$86.90	\$178.68	\$365.07	\$741.24	\$1,495.87
85	\$2.25	\$5.03	\$11.14	\$24.53	\$53.59	\$116.29	\$250.61	\$536.40	\$1,140.50	\$2,409.11
90	\$2.37	\$5.55	\$12.92	\$29.84	\$68.40	\$155.63	\$351.49	\$788.15	\$1,754.79	\$3,879.90
95	\$2.49	\$6.13	\$14.98	\$36.31	\$87.30	\$208.26	\$492.98	\$1,158.05	\$2,699.97	\$6,248.62
100	\$2.61	\$6.77	\$17.36	\$44.17	\$111.42	\$278.71	\$691.44	\$1,701.55	\$4,154.23	\$10,063.47



tion, however, for treating each reforestation project as a separate QTP, providing multiple \$10,000 deductions. This position is based on an IRS ruling that a separate timber account must be maintained in the taxpayer's records for each planting project.<sup>16</sup> This issue is discussed in greater detail at <http://www.timbertax.org> and <http://www.timbertaxadvice.com>. The \$10,000 limit also can be handled by spreading the expenses for each QTP over more than one year.

### **Claiming the Amortization and Expensing Deductions**

The amortization deduction is a deductible business expense if you report timber activities on a business tax return such as Schedule C (sole proprietorship), F (farm), 1065 (partnership) or 1120 (C-corporation). If your timber activity is not large enough to be a business, you file as an investor. This means you report expenses as a miscellaneous itemized deduction on Schedule A of your Form 1040. In this case, however, the amortization deduction is taken as an adjustment to gross income.<sup>17</sup> Thus, you benefit even if you do not itemize your deductions. If you do itemize, it is not subject to the limit for miscellaneous itemized deductions. Miscellaneous itemized deductions contribute to total itemized deductions only to the extent they exceed 2 percent of

adjusted gross income. If you file as an investor and elect to deduct reforestation expenses, you also report the expense as an adjustment to gross income on the first page of Form 1040.<sup>18</sup>

The total amount amortized is total qualified expenses. There is no limit on the amount that can be amortized. The amortization deduction or adjustment to gross income is 1/14 of the total qualified amount in the year of the expenditure, 1/7 for the next six years, and 1/14 the eighth year.

Up-to-date details, including the specific procedures for claiming the expensing and amortization deductions, are on the National Timber Tax website (NTTW) at <http://timbertax.org> and <http://timbertaxadvice.com>.

### **After-Tax Financial Analysis of Tree Planting**

Using the reforestation deduction or adjustment and amortization deduction or adjustment makes it easier to financially justify tree planting projects. Any action that reduces up-front costs significantly helps because of the long investment period. Revisiting Example 1, if John was in the 25 percent marginal tax bracket<sup>19</sup> and expensed his costs of \$350, \$80 and \$80 per acre over the three-year establishment period, his after-tax cost

as of 2011 would be approximately \$377 per acre. After-tax values for Table 1 are simply the tabled value times (1 minus the tax rate). If the Joneses in Example 1 were in the 25 percent tax bracket the unit multiplier for timber value would be \$7.98  $[(1 - 0.25) \times 10.64]$ . The \$1 spent on tree planting that is deducted has to produce timber worth at least \$7.98 in 80 years for each dollar spent, assuming a 3 percent opportunity cost. This is significantly less than the \$10.64 needed on a before-tax basis.

For \$1 amortized over 84 months instead of being deducted, the timber values needed to earn the specified interest rate and holding period are shown in Table 2. As with the expensing deduction the after-tax timber value needed is (1 minus the tax rate) multiplied by the values in Table 2.

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### Endnotes

- <sup>1</sup>  $\$350 + \$80/(1.03^1) + \$80/(1.03^2)$  Expenses are assumed to occur at the beginning of each year.
- <sup>2</sup> 33.63 billion bd ft. int'l log scale, converted to 20.86 billion bd ft. Doyle divided by 4,689,112 acres of timberland.
- <sup>3</sup> 4.45 MBF x \$413.
- <sup>4</sup>  $\$5,352/80/413 \times 1000 = 162$  bf/Acre, referred to as mean annual increment (MAI) by foresters.
- <sup>5</sup> See Mills and Callahan, 1981. The capital value of a perpetual series of \$1,200 payments every 10 years is  $\$1,200 / (1.03^{10} - 1) = \$3,489$ . Compounding for 30 years,  $\$3,489 \times 1.03^{30}$  provides a year 80 value of \$8,469. The same calculations for \$1,800 every 10 years yields a year 80 value of \$12,704.
- <sup>6</sup> Internal Revenue Code §121(b).
- <sup>7</sup> Internal Revenue Code §175.
- <sup>8</sup> IRC §263A.
- <sup>9</sup> IRC §263A(c)(5).
- <sup>10</sup> IRC §611(a), and Reg §1.611(3)(a).
- <sup>11</sup> The treatment of fertilization costs is an issue under consideration by the IRS. The recommended treatment is to amortize the cost over the number of years the fertilizer is expected to have an effect on the growth rate.
- <sup>12</sup> The cost of thinning and other forms of TSI are deductible currently in some cases. In this example the cost is added to the basis of the timber.
- <sup>13</sup> American Jobs Creation Act of 2004 [P.L. 108-357, §322(d)(2)(A)(i)].
- <sup>14</sup> Internal Revenue Code §194(a).
- <sup>15</sup> Internal Revenue Code §194(b).
- <sup>16</sup> IRS Notice 2006-47, IRB No. 2006-20 (May 15, 2006), p. 895-896.
- <sup>17</sup> §62(a)(11).
- <sup>18</sup> §62(a)(11).
- <sup>19</sup> Marginal tax rate is the rate applicable to an additional \$1 of income or deduction. It usually is higher than the average rate.
- <sup>20</sup> \$1.00 amortized over 84-month is Year 1 - \$0.071429, Year 2 to 7 - \$0.142857, Year 8 - \$0.071429. For each interest rate in the table these amounts were discounted back to year 1. The resulting value was then compounded at each interest rate.





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