Chapter 10: Economic Considerations

In this chapter:

- **Agroforestry Budgeting**
- **Agroforestry Costs**
- **Revenues**
- **Funding Incentives for Agroforestry**
- **Summary**
- **Additional Resources**

Agroforestry Economics Overview

This chapter is a brief overview of the resources and information found in the detailed Agroforestry in Action guides produced by the Center for Agroforestry. These guides are included in the Appendix of this Training Manual:

- *Economic Budgeting for Agroforestry Practices*
- *Tax Considerations for the Establishment of Agroforestry Practices*
- *Funding Incentives for Agroforestry in Missouri*

Agroforestry should not be thought of as a set of practices that take land out of production. Instead, agroforestry is a set of practices that responsibly weaves together production and stewardship. There are many economic benefits to incorporating agroforestry practices into agricultural landscapes. The five practices of agroforestry provide opportunities for generating income from a wide array of alternative products, ranging from edible nut and berry crops to diverse woody floral crops. Additionally, agroforestry practices provide valuable environmental services for landowners, such as soil and stream protection, wildlife habitat, and aesthetics at a low cost.

Monitoring the economic costs and benefits from an agroforestry practice is essential for analyzing its economic success or failure. Economic budgeting provides a method for systematically tracking costs and revenues that are incurred on any productive enterprise.

For most agroforestry practices, there are numerous incentive programs available that can help offset establishment costs. Federal income tax laws can also provide incentives in the form of increased deductions from taxable income and lower tax rates on certain types of income. This chapter will briefly discuss agroforestry from an economic perspective.

Budgeting, funding incentives, and tax incentives are three of the most important economic considerations when analyzing an agroforestry practice. Even if the goals of the landowner do not include managing the agroforestry practice for income, the landowner should be aware of ways to minimize the costs associated with establishing and maintaining that practice.

Economic Budgeting

Economic budgeting is a decision making tool used to:
1) report,
2) monitor,
3) analyze, and
4) forecast the financial performance of an economic enterprise.

Budgets can be highly detailed standardized forms or roughly delineated estimates on the back of an envelope. The quality of the economic analysis and thus the quality of the decisions made based on the analysis depend on the time and effort put into the budget.

There are several methods for budgeting, depending on the type of analysis being conducted. For agroforestry economic analysis, two main types of budgets are used: **enterprise budgets** and **cash flow budgets**.

- **Enterprise budget:** This is a detailed list of all cost and revenues for a single enterprise, such as corn or livestock, typically for a single planning period.

- **Cash flow budget:** This is a detailed schedule of the amount and timing of costs and revenues. Cash flow budgets can identify possible risks, predict cash needs over a period of time, and provide a basis for comparison with other alternatives. A cash flow budget can combine several enterprise budgets to identify areas where losses from one enterprise can be offset by revenues from another enterprise.

Costs

Costs can be grouped into two categories: fixed and variable. Within these two categories, costs are separated even further into cash and non-cash costs. Cash costs are those costs that require out-of-pocket cash payments. Non-cash costs are often called economic costs or opportunity costs. Understanding each of these categories of costs will help organize data into economic information.

- ***Fixed costs:***

Fixed costs are typically those costs that are attributed to resource ownership. In other words, fixed costs occur regardless of any productive activity being attempted. Fixed cash costs are out-of-pocket expenses that are not dependent on production level or commodity. Examples of fixed cash costs include property taxes and insurance. Fixed non-cash costs are accounting costs that do not require a cash outlay. Although these costs are incurred regardless of production, they are influenced by production activities. For example, depreciation is a non-cash fixed cost that accrues regardless of whether the capital is used for production or not. A tractor will depreciate in value even if it is parked in a barn and never used. The amount and type of capital that depreciates will depend on the production activities. A crop enterprise may have depreciation from specialized equipment such as a combine and a planter, but a livestock enterprise will not have this type of depreciation.

- ***Variable costs:***

Variable costs are those costs attributed to the productive use of resources. Variable cash costs include all input costs, such as seed, chemicals, fuel, hired labor, and maintenance. Variable cash costs for agroforestry practices can be broken down even farther into four main cost areas: establishment, maintenance, harvesting, and marketing. One of the most common mistakes that many landowners make is failing to account for their own personal time. Although many landowners enjoy the time they spend working with trees and nature in general, there is still an economic cost to the time that is spent establishing, managing, harvesting, and marketing products from agroforestry practices. Remember to count personal time spent as a variable cost.

Revenues

Typical revenues from conventional forestry can come from things such as nuts, timber, and seedlings. In agriculture, revenues are typically based on monocultured crops or livestock enterprises. However, by combining agriculture and forestry, more revenue opportunities can be realized from the same natural resource base. Revenues in agroforestry are limited only by the creative resources of the decision maker.

Many agroforestry practices require significant investment during establishment years, followed by a period of several years before the trees start to generate a return on that investment. This may be a strong disincentive to the adoption of these practices, even if long-run estimates indicate that the practice will be more profitable. Because of this characteristic of agroforestry, landowners should be encouraged to seek out additional incentives for agroforestry.

Incentives for Agroforestry

Agroforestry incentives can come from many different sources. The fact that the practice improves the environmental quality of a landowner's property may be all the incentive needed to convince that landowner to adopt that practice. However, for some landowners to adopt requires a significant financial incentive. Programs designed to minimize or offset the initial establishment cost burden are the most common type of funding incentive available to landowners interested in agroforestry.

Funding incentives can come from at least three major sources:

1) Federal,
2) State, and
3) private conservation programs.

Federal conservation programs are those initiated by major legislation, such as the Farm Bill. Examples of federally funded agroforestry incentives would include programs such as:

- Conservation Reserve Program (CRP)
- Environmental Quality Incentive Program (EQIP)
- Wetland Reserve Program (WRP)
- Wildlife Habitat Incentive Program (WHIP)
- Conservation Security Program (CSP)
- Sustainable Agriculture Research and Education Program (SARE)
- Partners for Fish and Wildlife (PFW)

These programs offer cost share payments, land easement payments, and other incentive payments to landowners who adopt environmentally responsible land-use practices. One downside to many of these programs is the fact that the landowner often foregoes design flexibility and alternative product market income for the guaranteed program payments.

State funding programs are very similar to the federal programs. In 1990, the State of Missouri passed an innovative program called the Missouri Agroforestry Program which was part of the Missouri Economic Diversification and Afforestation Act. Although this program has had limited funding, the concept is unique in the fact that it encourages landowners to seek income opportunities from alternative products grown or harvested from land that is managed primarily for conservation benefits. The Missouri Department of Conservation was given the responsibility of overseeing this program along with a cost share program that promotes conservation practices. Other sources of funding in Missouri include the Missouri Department of Agriculture and the Missouri Department of Natural Resources.

Private funding sources with application for agroforestry often center on organizations that promote game animals or forestry. Private sources include groups such as Pheasants Forever, Ducks Unlimited, Quail Unlimited, and the National Wild Turkey Federation. These organizations offer cost-share programs and land easement payments to landowners who manage their land in a way that improves the habitat of the game animal they represent.

Tax Incentives

Another incentive for agroforestry adoption may be the income tax benefits that a landowner could receive.

There are three basic ways to substantially reduce your tax burden:

1) increased deductions,
2) reduced tax rate, and
3) tax credits.

The current Internal Revenue Code (IRC) offers at least four areas where a landowner can reduce their potential tax burden by establishing an agroforestry practice.

The IRC offers tax benefits for

1) reforestation,
2) conservation,
3) business investment, and
4) capital gains.

- **Section 194** of the IRC describes the reforestation deduction and amortizable basis deduction. This deduction allows a landowner to deduct the first $10,000 of reforestation expenses from taxable income and then amortize and deduct the remaining expense over an 84-month period.
- **Section 175** describes the conservation deduction that allows a landowner to deduct certain conservation expenses up to 25% of the gross income earned from the farming business. These conservation expenses must be incurred in accordance with a plan approved by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), or a similar agency.
- **Section 126** details how to exclude cost-share payments received from approved federal or state conservation programs from taxable income.
- **Section 179** allows a landowner who is managing the agroforestry practice as an active business to deduct a large amount of expenses incurred for personal property used more than 50% in the business.

Summary

Agroforestry is a set of land-use practices that interlaces production and stewardship. From an economic standpoint, agroforestry can increase production diversity by integrating a wide range of commodity and alternative products. In order to monitor and analyze the economic parameters of an agroforestry practice, landowners may need to adopt some form of economic budgeting. Because of the impact of long establishment periods and long periods where no economic returns are generated, a combination of enterprise budgeting and cash flow budgeting is recommended in order to fully capture the short- and long-term revenue potentials.

Some agroforestry practices may have substantial cost during an establishment period and not generate revenue to offset those costs until several years later. Because of this, landowners may wish to seek funding incentives to help ease the establishment cost burden. Federal, state and private conservation programs offer land easements and cost-share payments for establishing agroforestry practices or related land use practices.

In addition to these programs, the IRC offers some substantial tax benefits for those who invest in reforestation, conservation, or some form of business that relies on the management of the natural resource base.

Additional Resources

Economic Budgeting Websites:

- Financial Management Resources
  http://www.pubs.ext.vt.edu/category/agricultural-financial-mgmt.html
- University of Missouri Extension Agroforestry publications
  http://extension.missouri.edu/main/DisplayCategory.aspx?C=77

Funding Incentive Websites:

- USDA Farm Service Agency homepage. http://www.fsa.usda.gov
- USDA Natural Resource Conservation Service homepage. http://www.nrcs.usda.gov
- Sustainable Agriculture Research and Education (SARE) homepage. http://www.sare.org
- Building Better Rural Places, A publication of the U.S. Department of Agriculture agencies working together for sustainable ru-ral development in collaboration with The Michael Fields Agricultural Institute and The National Center for Appropriate Technology (NCAT). http://www.ngfn.org/resources/ngfn-database/knowledge/resource.pdf
- Forest Landowners Guide to Internet Resources: States of the Northeast, US Forest Service Northeastern Area and the Northeastern Area Association of State Foresters.
  http://www.forestenterprise.org/resources/Forestry/Forest%20Landowners%20Guide%20to%20Internet%20Resources.pdf
- Missouri Department of Agriculture. Financial Assistance:
  http://agriculture.mo.gov/abd/financial/

Tax Incentive Websites:

- National Timber Tax Website http://www.timbertax.org/
- Internal Revenue Service Website http://www.irs.gov

EXERCISE: REVIEW OF ECONOMIC INCENTIVES

Variable cash costs can be grouped into four categories, what are they?

1.
2.
3.
4.

Two types of budgets are recommended for the economic analysis of agroforestry practices, what are they?

1.
2.

What are the four sections of the Internal Revenue Code (IRC) that can affect agroforestry adopters?

1.
2.
3.
4.

What is the difference between a variable cost and a fixed cost?

EXERCISE KEY

Variable cash costs can be grouped into four categories, what are they?

1. Establishment
2. Maintenance
3. Harvesting
4. Marketing

Two types of budgets are recommended for the economic analysis of agroforestry practices, what are they?

1. Enterprise budget
2. Cash flow budget

What are the four sections of the Internal Revenue Code (IRC) that can affect agroforestry adopters?

1. Section 194- Reforestation deduction and amortizable basis deduction
2. Section 175-Conservation deduction
3. Section 126-Cost-share exclusion
4. Section 179-Business investment deduction

What is the difference between a variable cost and a fixed cost?

A fixed cost is a cost that is associated with the ownership of resources. Fixed costs must be paid regardless of what activity is conducted on the property. Variable costs are costs associated with the productive use of resources. Variable costs are the costs that are used when comparing the economics of competing resource-use options.

Notes