

FOREST FARMING: AN AGROFORESTRY PRACTICE

INTRODUCTION

Most public and private forest lands of North America have been modified to varying degrees from years of human activity. Certain high-value 'non-timber forest products' have been over-exploited and are difficult to find. Forest farming practices can be used by private enterprise to grow desirable non-timber forest products on private lands, to supplement family income, and to allow biodiversity to reestablish within forests.

DEFINITION

Special forest products (SFPs) or non-timber forest products (NTFPs) are high-value specialty product items derived from green plants, fungi, invertebrates, and other organisms that inhabit forested areas.

These products fall into four general categories (See table on reverse):

- food (e.g., mushrooms and nuts)
- botanicals (e.g., herbs and medicinals)
- decoratives (e.g., floral greenery and dyes)
- handicrafts (e.g., baskets and wood products)

CONCEPTS AND PRINCIPLES

In forest farming practices, high-value specialty crops are intentionally cultivated under the protection of a forest overstory that has been modified and managed to provide the appropriate microclimate conditions. Typically, these systems are established on private land by thinning an existing forest or woodlot to leave the best crop trees for continued wood production and to create the appropriate conditions for the understory crop to be grown. Then, the understory crop is established and intensively managed to provide short-term income.

PLANNING AND DESIGN

A forest farming practice is usually a small area of land (5 acres or less) whose vertical, horizontal, and below-ground dimensions are managed intensely to produce multiple crops simultaneously. Systems usually focus on a single SFP plus timber, but can include several products. Examples of systems include:

- ginseng + maple syrup + bee products + timber
- shiitake mushrooms + timber
- ferns + beargrass + mushrooms + timber
- ginseng + walnuts + black walnut veneer logs

The amount of light in the stands is altered by thinning, pruning, or adding trees. Existing stands of trees can be intercropped with annual, perennial, or woody plants. Compatibility among understory and overstory plants and cultural methods is essential.

Before investing time and money in growing a particular SFP, an entrepreneur needs to:

- obtain production and processing information
- locate a source of technical expertise
- locate or develop potential markets

A common problem with developing an enterprise around a new product is the scarcity of technical information. Sources of expertise for producing SFPs can be obtained from state forestry and conservation agencies, the Cooperative Extension Service in county offices or state universities, the Natural Resources Conservation Service, and the USDA Forest Service.

A market analysis and business plan are essential before starting an enterprise. The existence and type of market depend on the SFP. Markets are often local stores or cooperatives. For example, shiitake, matsutake, morel, and chanterelle mushrooms, and truffles, may be sold directly to gourmet French and Asian restaurants, Asian and natural food stores, or to a middleman or cooperative for resale to larger more distant markets. Markets for decorative products like salal and beargrass are in urban areas and overseas. Decoratives may be sold through cooperatives or to local buyers. Non-local buyers may also be reached through the internet.

BENEFITS

ECONOMIC

Some products especially medicinals and botanicals can have tremendous economic value, while others provide a lower but steady supplemental income. For example,

- Forest-cultivated ginseng averages \$200-\$400 per pound, depending upon how closely the product resembles wild ginseng
- A cord of wood worth \$50-\$100 can produce \$500 worth of shiitake mushrooms. In 1990, wholesalers paid from \$3.50 to \$10 per pound for shiitake mushrooms in the Southeast. Retail prices were between \$9 and \$12 per pound
- Markets for floral decoratives have been steady or increasing. In 1991, buyers paid \$1.00 and \$1.00-\$1.60 for salal and beargrass, respectively, and about \$0.01 per swordfern frond
- In 1996, honey was worth about \$3.00 per pound

CONSERVATION AND SYSTEM-LEVEL

Forest farming activities modify the forest ecosystem but do not significantly interfere with its crucial contributions of water capture and filtering, soil erosion control, microclimate moderation, and wildlife habitat. Producers should avoid harmful species and follow EPA approved guidelines for herbicides, fungicides, and insecticides.

SOCIAL

Forest farming provides opportunities to generate short-term income from existing woodlots, with minimum capital investment. Especially on small family farms, this can contribute significantly to rural economic development and diversification.

ADDITIONAL INFORMATION

- "Alternative Forest Products." by Nancy P. Arny, Deborah B. Hill, and Alan J. Worms. 1994. pp 133-138 In: Southern Hardwood Management Bulletin R8-MB67. USDA Forest Service, Southern Region, 114 p.
- "American Ginseng-Green Gold." by Scott W. Persons. 1994. Bright Mountain Books, Asheville, NC, 203 p.
- "American Ginseng Production in New York State." by R.L. Beyfuss. 1994. Cornell University Cooperative Extension Service, USDA Farmers Bulletin 2201, 20 p.
- "Forest Farming: Revitalizing and Expanding Crop-Yielding and Forest Based Enterprises." by Deborah B. Hill and Louise Buck. 1998. Chapter 8 In: Agroforestry-An Integrated Science and Practice. W.J. Reitveld, H.E. Garrett, and R.F. Fisher (eds.). American Society of Agronomy Special Publication (In Press).
- "Income Opportunities in Special Forest Products." by M.G. Thomas and R. Schermann. 1993. USDA Agricultural Information Bulletin 666, 206 p.
- "The Forest Beyond the Trees." USDA Forest Service. 1993. USDA Forest Service, Pacific Northwest Region, 13 p. (unnumbered brochure).

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