UNIVERSITY OF FLORIDA
IFAS EXTENSION

CIR 1434

# Farming in the Forests of Florida[1]

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Forest settings can provide an ideal location for cultivating many valued plants which prefer shaded conditions. There are many nontimber forest products including animals and shade tolerant plants which can be intentionally promoted by specific management practices. When considering alternatives for forested land several elements need to be investigated to identify how feasible forest farming will be given the available resources, site characteristics and plans for the land. Ideal forest crops have a relatively high value and are capable of producing profitable volume over the preferred time frame. This fact sheet presents some examples of forest farming appropriate for Florida's forests. This is just a start however; the possibilities of forest farming are limited only by your imagination.

### *What is Forest Farming?*

Forest farming can be defined as cultivation of plants under a forest canopy (as opposed to wildcrafting, the practice of collecting wild plants and products from a forest). Forest farmers can manage different layers in the forest structure to increase sustainable harvests of forest products from natural forests or plantations. The canopy provides timber, nuts and fruits like pecans and persimmons; the middle layer may be full of mayhaw, vines, palmettos, berries or ornamentals; and the forest floor can be cultivated for medicinal and culinary herbs, roots, mushrooms and landscaping or florist products like flowers and ferns. The multilayered structure of a farmed forest improves wildlife habitat and may increase the aesthetic and recreational value of the property.

## Nuts, Fruits, Berries and Gourmet Crops

***Nuts and Fruits:*** Many tree and shrub species native to Florida and the southeastern United States produce valuable nuts and fruits. For example, naturally-growing pecans (*Carya illinoensis*), pignut hickory (*C. glabra*), mockernut hickory (*C. tomentosa*) and black walnuts (*Juglans nigra*) can be found in our forests. Shade tolerant crops like wildflowers, floral greenery or native fruit trees can also be grown in pecan orchards, providing additional benefits to farmers. The American persimmon (*Diospyros virginiana*) grows in north and central Florida sandhills, hammocks, bottomlands and old fields. The numerous varieties of oriental persimmons

1. This document, CIR 1434 is one of a series through the Center for Subtropical Agroforestry (CSTAF), School of Forest Resources and Conservation, Institute of Food and Agriculture Sciences, University of Florida. First published March 2003. This publication was produced by the University of Florida with assistance from USDA/CSREES/IFAFS. For more information contact CSTAF, PO Box 110831, Gainesville, FL 32611, (352)846-0146, http://CSTAF.ifas.ufl.edu.

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(*D. kaki*) are better suited for production and can be grafted onto the rootstock of our naturally occurring persimmon. While the pawpaw (*Asimina triloba*) will produce well in sunlight, the seedlings require shade for their first couple of years and mature wild pawpaw trees can be found under forest canopies. Likewise, mayhaws (*Crataegus aestivalis, C. opaca,* and *C. rufula*), which do well on drier soils with more sun, are naturally found on wet, shady sites.

***Berries:*** Blueberries require acidic, organic soils and grow well under pine canopies. Rabbiteye blueberries (*Vaccinium ashei*) are typically grown in north Florida, and southern highbush (*V. corymbosum* and *V. darrowi* hybrid) blueberries are grown south of Ocala. A number of other blueberry and huckleberry species also grow well under pine stands, especially with periodic prescribed burning. Florida producers can capitalize on early season prices by putting their blueberries on the market over a month before the rest of the nation, and U-pick operations are popular near urban areas. Deciduous fruit and nut-bearing species typically require a period of winter dormancy to bear. Check on the chilling requirements for the particular cultivar or species to see what is suitable for your area.

***Mushrooms:*** Farmer to chef markets can be developed for herbs, mushrooms and specialty vegetables grown in managed forest settings. Mushroom production under shade can add value to scrap wood and provide additional income for producers. Native edible mushrooms such as chanterelles (*Cantharellus* spp.) and morels (*Morchella* spp.) have long been collected. Exotics such as maitake (*Grifola frondosa*), shiitake (*Lentinus edodes*) and various oyster mushrooms (*Pleurotus* spp.) are increasingly cultivated for popular markets. Small forest patches can be cleared for mushrooms like morels that prefer to grow on forest floor litter. Small hardwood logs, less then 15 cm (6 inches) in diameter, from thinning operations are ideal for the family-business scale production of shiitake and other gourmet mushrooms. In south Florida, innovative producers are growing the medicinal rishi mushroom (*Gandoderma lucida*) on melaleuca (*Melaleuca quinquenervia*) logs and oyster and other edible mushrooms on sawmill waste. Fungal spores, called spawn, required to start production of edible mushrooms are available from seed catalogues and the World Wide Web. Developing markets is a challenge, though producers who are flexible and can meet seasonal production and labor demands have retained steady markets and in some cases, have developed year round enterprises.

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## Medicinal Plants and other Botanicals

Many shade tolerant medicinal plants grow naturally or were historically cultivated in the forestlands of north-central Florida and the southeast Coastal Plain (See Table). The growing demand for herbal supplements and natural products has led to over-harvesting and decline in natural populations of many species. Cultivation under forest canopies in wild-simulated conditions can produce the supplies needed for these markets as well as maintain the valuable and unique characteristics of the medicinal plants while ensuring the survival of the species.

***Saw palmetto:*** There is a strong demand for saw palmetto (*Serenoa repens*) berries for the treatment of enlarged prostate condition in men. Berry fruiting is related to the length of time since the last fire. In north-central Florida, saw palmetto requires up to four years to regenerate enough energy to begin producing berries again. By early summer healthy plants can produce as many as 500 berries that can be collected from September to October when they ripen and turn black. The berries should then be cleaned and dried in the sun or in a dryer. Besides our medicinal usage, palmetto berries are an important food source for wildlife such as black bears, white-tailed deer, grey foxes, raccoons, opossums and wild turkey. Additionally, the thickets provide nesting and cover for many species. The endangered Florida panther and the Florida Grasshopper Sparrow prefer palmetto thickets for nesting. The flowers are insect pollinated and are an excellent nectar source for honey bees. With increasing urbanization, saw palmetto has become a popular drought tolerant, though extremely flammable, landscaping plant.

Consider contacting buyers before beginning production of medicinal plants since many plants must be processed fresh. In addition to appropriate harvesting and processing information, buyers may be able to provide valuable propagation and cultivation techniques. People interested in the production of medicinal plants should be aware that the industry is characterized by fluctuating prices which follow supply and demand. The supply and demand of botanicals is in turn, heavily influenced by the publication of scientific research and reports on specific plants and current trends in alternative medicine and natural products.

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## Ornamentals, Cut Flowers & Other Greenery

Other examples of forest farming include ferns or other ornamentals grown under shade. Greenery products gathered and produced from forests are sold for floral and holiday markets. Tips clipped from lower limbs of conifer trees serve as raw material for loose greenery, garlands, centerpieces and wreaths or swags. Early in the 20th century, a fern growers association developed in central Florida to supply asparagus fern (*Asparagus setaceus*) to stores in the northeastern U.S. This cut foliage industry grew as a contract grower-brokerage business and evolved with changing modes of transportation and markets promoting leatherleaf (*Rumohra adiantiformis*) and asparagus fern. The association continues today with an expanding offering of floral greens and live plants, including ferns grown under shade or planted in native oak forests. Grapevines, willows, crooked wood, variegated and green ivy, spanish moss, palmetto fronds and even kudzu vines have value in these markets. Additionally, Florida and subtropical coastal areas of the southeast U.S. offer many unique native plants such as our palms, blazing stars (*Liatris* spp.), haws (*Viburnum* spp.), hollies (*Ilex* spp.), Florida and star anises (*Ilicium* spp.), beautybush (*Callicarpa americana*) and wild poinsettia (*Poinsettia cyathophora*), which can be grown for ornamental landscaping, cut flowers and seed.

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## Marketing Your Forest Farmed Products

For some landowners forest farming will be a recreational or retirement hobby, with satisfaction derived from time spent in the forest and materials produced for friends and family. Other landowners will approach forest farming with a distinct financial objective. As with any enterprise, market analysis and a business plan are essential. The first step is to clearly define the objectives of the activity. Preliminary research up front can prevent frustration later. Does the crop have pest or disease problems in certain growing conditions? Will cultivation require irrigation, special labor or other inputs? How can the crop be protected from thieves and hungry animals? How does it fit into the calendar of annual activities already in progress? Managing with an eye for uncertainty and reducing risk can improve cash income for growers.

Locate potential markets before starting and determine what products they desire. The key to marketing is to produce a product at a competitive price that the market wants; not simply selling what is available. Will you sell in local or regional markets? Are there cooperatives or local buyers involved in marketing the products? A marketing strategy is important for forest farming products and just as important for a farm business as it is for a large company.

A reliable source of technical expertise may be arranged with the assistance of your local county extension professionals. County extension offices can be found on the World Wide Web associated with state universities or in the phonebook under county cooperative extension services. The appropriate production and processing information should be obtained for each product of interest. A schedule of activities required can be developed and the costs and returns determined. By attaching dollar values to these activities and discounting the values of future activities to the present, the net present value (NPV) of the proposed enterprise can be determined. NPV enables alternative proposals that may have vastly different time frames to be compared for determining which one has the greatest economic potential. Finally, develop a management plan for the forest and a business plan for the enterprise. These plans will guide forest farming activities and can assist you as a landowner in obtaining the necessary financing. The cost of developing these activities may also be tax deductible.

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**Table 1.** Selected Medicinal Plants Historically Found in Florida

| Common Name | Scientific Name | Usage | Florida Region(s) | Forest Type |
|---|---|---|---|---|
| Aletris | *Aletris farinose* | Tonic, digestive and female pelvic organs | North, Central | Swamps, bogs and moist flatwoods |
| Boneset | *Eupatorium perfoliatum* | Antipyretic, stimulant, tonic | North | Moist flatwoods and bogs |
| Bloodroot | *Sanguinaria canadensis* | Stimulant, expectorant | North, North-central | Limestone hammocks |
| Deer-tongue | *Trilisa odoratissima* | Perfume, flavoring | North, Central | Moist flatwoods, bogs |
| Fringe tree | *Chionanthus virginica* | Germicide | North, North-central | Moist bottomlands |
| Gentian | *Gentiana elliottii* | Tonic | North-central | Bogs, bluff seepages |
| Mullen | *Verbascum thapsus* | Antiseptic, expectorant | North, North-central | Disturbed sites |
| New Jersey | *Ceanothus americanus* | Astringent, blood coagulant | North, North-central | Sandhills and dry hammocks |
| Passionflower | *Passiflora incarnate* | Sedative | North, Central | Moist to dry open forests, distributed sites |
| Pleurisy root | *Asclepias tuberosa* | Expectorant | Throughout | Flatwoods and sandhills |
| Pokeweed | *Phytolacca americana* | Anti-inflammatory, anti-bacterial, antiviral | Throughout | Open forests and disturbed sites |
| Pond apple | *Annona glabra* | Stomachache, diarrhea | Central, South | Swamps |
| Queen of the Meadow | *Eupatorium purpureum* | Urinary disorders | North | Bottomland, disturbed sites and flatwoods |
| Queen's Delight | *Stillingia sylvatica* | Expectorant, laxative | North, Central | Sandhills, flatwoods, upland mixed forests |
| Sassafras | *Sassafras albidum* | Tonic, antipyretic | North, Central | Moist hammocks |
| Saw palmetto | *Serenoa repens* | Prostate enlargement | Throughout | Flatwoods and sandhills |
| Slippery elm | *Ulmus rubra* | Mucilaginous | North, Central | Bottomlands, hammocks |
| Spikenard | *Aralia racemosa* | Stimulant | Throughout | Moist upland forests |
| Sumac | *Rhus glabra* | Antistringent, diuretic | North | Open hammocks, disturbed sites |
| Sweetgum | *Liquidambar styraciflua* | Stimulant, expectorant, diuretic | North, Central | Moist bottomlands and hammocks |
| Wild Cherries | *Prunus serotina* | Cough medicine | North, Central | Hammocks, mixed uplands/bottomlands |
| Wax myrtle | *Myrica cerifera* | Alterative, cholagogue | Throughout | Sandhills and sandy sites to bogs |
| Wild Indigo Root | *Baptisia tinctoria* | Stimulant | North-central | Sandhills, flatwoods and disturbed sites |
| Wild Yam | *Dioscorea villosa* | Diaphoretic | North | Swamps and bogs |
| Witch Hazel | *Hamamelis virginiana* | Anti-inflammatory | North, North-central | Hammocks and bottomlands |

Adapted and updated from B.V. Christensen's Collection and Cultivation of Medicinal Plants of Florida.