Understanding Agroforestry

Q: What do trees, livestock, field corn, and ginseng have in common?
A: All can be elements of agroforestry practices. Agroforestry is a combination of forestry and agriculture. It is an intensive land management system that optimizes the benefits from the biological interactions created when trees and/or shrubs are combined deliberately with crops and/or animals. The system is intentional, intensive, interactive, and integrated, which distinguishes agroforestry from other forestry or agriculture practices.

Agroforestry practices

Among the agroforestry practices applicable to Maryland are alley cropping, silvopasture, riparian buffer strips, and forest farming.

**Alley cropping** is the combination of trees, planted in single or grouped rows, with agricultural or horticultural crops cultivated in the wide alleys between the rows. High-value hardwoods such as oak, walnut, and ash, are typical alley cropping species. Annual or perennial crops are grown between the rows of trees and provide short-term income before the trees bear nuts, close in the overstory, or are harvested for timber. Such crops are field, sweet, or pop corn; small grains or specialty grains; berries; paw paws; pumpkins; sunflowers and other cut flowers; and clover for honey production. The widths of the alleys and tree rows affect how many years the alleys receive sunlight and are suitable for crops.

**Silvopasture** combines trees with forage and livestock production. The trees are grown for timber and provide shade and shelter for livestock. The concept of silvopasture still is developing. It currently focuses on

Alley cropping combines trees with crops or forage for short and long-term benefits. This young agroforestry plot contains rows of black walnut trees and alleys of field corn.
grazing sheep, cattle, or goats between rows of trees such as black walnut, honey locust, and black locust. The forage crop can be cool- or warm-season grasses.

A successful silvopasture requires an understanding of forage growth and good grazing management. Managed grazing enhances tree growth by controlling grass competition for moisture, nutrients, and sunlight; provides economical control of weeds and brush without herbicides; maintains fire breaks; reduces habitat for gnawing rodents; and recycles nutrients to trees and forage through manure. Silvopasture can provide income from livestock production and timber products. Silvopasture is different from simply grazing cattle in the forestland because it is developed intentionally and managed intensively.

**Riparian buffer strips** are trees, shrubs, or grasses planted between water and cropland or pasture. These strips are managed to intercept sediment, reduce pollution from agriculture activities on adjacent lands, stabilize streambanks, enhance stream and land habitats, improve the landscape appearance, and provide harvestable timber products. Planting of riparian forest buffers using native tree species is a focus of tree planting programs in our region. In the Midwest, hybrid poplar—a non-native species—has been used extensively in riparian buffer plantings.

**Forest farming** uses a forested area for producing specialty crops. These crops are sold for medicinal, ornamental, or culinary uses. Shade tolerant crops such as ginseng, goldenseal, decorative ferns, or shiitake mushrooms are cultivated under a forest cover that is modified to provide the correct level of shade. Maple syrup production also is considered forest farming. Forest farming is intentional, intensive cultivation and is different from *wildcrafting*, gathering native wild plants for sale.

**Wind breaks and hedge rows** are important components of agroforestry in other regions. In these practices, trees shelter livestock and protect natural resources.

**Issues to Consider**

Agroforestry only recently has received attention and promotion in this country because it can address landowners’ needs for improved productivity, potential profitability, and protection of natural resources. Yet much remains to be learned about the profitability and sustainability of integrating agroforestry practices into forestry or agriculture.

Agroforestry practices that work in one part of the country may not work in another part. Soils, climate, agriculture practices, markets, and other factors vary.

For any agroforestry system to be considered a viable alternative to forestry, it must provide economic or conservation benefits consistent with the forest landowner’s objectives. A practice is more likely to be adopted if it pays—by increasing yields, reducing costs, or generating new products and income. The reality is that income from agroforestry likely will be supplemental, rather than primary. Even when agroforestry practices are used to speed up the economic return from timber trees, they are not a “get rich quick” scheme. Many cultivated forest products require several years of growth before harvesting.

Marketing is a major consideration. For a product to be valuable, there must be a market for it. Markets should be thoroughly researched and planned before venturing into any agroforestry practice that yields a specialty product. The landowner should start small and expand only if preliminary results are positive.

A limited number of cost sharing programs assist with agroforestry practices, e.g., the establishment of riparian buffers. However, the landowner must understand the requirements of these programs as some put limitations on forestry activities.
Economics of Agroforestry

Three general economic benefits typically are ascribed to agroforestry: (1) spreading of fixed costs associated with forestry and agriculture activities; (2) reducing the initial time period required to produce income from land devoted exclusively to tree production; and (3) diversifying income sources and spreading the risk generally associated with a monoculture.

At the same time, agroforestry systems have been criticized from an economic standpoint because the initial cost of establishment, in terms of capital and labor, may be prohibitive if no early income is possible; management can be complicated because more than one crop is grown at a time in the same field; and there may be a shortage of knowledgeable contractors or markets for products of agroforestry practices.

Is Agroforestry for You?

If you are considering an agroforestry practice, first learn all you can from sources such as those listed at the end of this article. Develop an enterprise budget with details on establishment and overhead costs along with the projected revenues. Subtract costs from the projected income and determine if a profit can be made. Your county Cooperative Extension office can provide assistance on enterprise budgeting. If you determine the agroforestry practice can be profitable, do some test planting before going large scale.

Agroforestry offers expanded possibilities for forest landowners. It promotes biodiversity, increases production through its concurrent multiple uses of land, and is applicable to small as well as large areas. You should consider your objectives and resources to determine if an agroforestry practice is worthwhile.

Agroforestry should be tailored to your individual situation. It should be approached from the perspective of your forest stewardship objectives and blended and balanced with your other production and conservation practices to achieve a more sustainable economic use of your forest or agriculture land.

Information on agroforestry:
Sustainable Agriculture Research and Education program, USDA. 202-720-5203, www.sare.org; information and grants.

Information on enterprise budgeting:
County Cooperative Extension office, listed under “government” in the telephone book or www.agnr.umd.edu/ces/coooffices.html.

28 Share Information

Twenty-eight Marylanders are ready to help landowners know how to manage their forest land and wildlife habitat. They received intensive training this fall through the Coverts Project, a volunteer education outreach effort. Among the group are forest landowners, environmental science teachers, city and county planners, and land trust officials. Coverts Cooperators commit to at least one year of implementing sound forest and wildlife management principles on their own land, sharing their knowledge with others, and directing landowners to sources of information and assistance.

Since 1990, more than 200 people have expanded their forest and wildlife management knowledge and skills through Coverts training in Maryland. The Coverts Project is sponsored by Maryland Cooperative Extension and the Ruffed Grouse Society. To learn more about Coverts or to talk with a Coverts Cooperator in your area, contact The Coverts Project, c/o Branching Out.

Stewardship Videoconference

Economic and financial considerations of forest stewardship will be featured in a multi-state satellite videoconference in April. Presentations include forest management choices, assessing natural resource income options, income opportunities for private landowners, taxes, and estate planning. Downlink sites should be available for listing in the next issue of Branching Out.

The Other Y2K Bug

Y2K isn’t the only bug of concern. The Asian longhorned beetle (ALB)—a serious pest of hardwood trees—has attacked trees in the United States. Repeated attacks lead to dieback of the tree crown and eventual death of the tree. Although ALB have not been detected in Maryland and the surrounding states, the beetle has been intercepted at ports and found in warehouses throughout the United States. Early detection of infestations is crucial to successful eradication of the beetle. Information on ALB is on the Internet at http://willow.ncfes.umn.edu/asianbeetle/beetle or from your county Extension office.
**Take Note**

*Woody Plant ID* is an interactive CD Rom to help you identify more than 125 woody plants found in the eastern United States. Includes more than 2,000 pictures and descriptions of leaves, twigs, fruit, flowers, and bark, along with form, range maps, and interesting tidbits. Produced by Virginia Tech, Penn State, and the University of Georgia. Order ISBN 0-7872-3803-1 from Kendall/Hunt Publishing Company, 800-228-0810, $50. Preview the CD at [www.cnr.vt.edu/dendro/forsite/ldtree.htm](http://www.cnr.vt.edu/dendro/forsite/ldtree.htm).


Become certified as a *Wildlife Habitat Naturalist* through a home study course. Produced by Windstar Wildlife Institute, it will be available both on the Internet and to those who don’t have Internet access. Beginning in January, the first half of the 14-unit course is devoted to discovery and the second half to projects. Fee $150-$175. Contact Janet Ford, 301-293-3351 or janet@windstar.org.

Websites:
- New! Coverts Project in Maryland: [www.welcome.to/Coverts](http://www.welcome.to/Coverts).
  Gives information on forest and wildlife education outreach through the Extension-sponsored Coverts Project and links to other related sites.
- Bird conservation: [www.epa.gov/owow/birds](http://www.epa.gov/owow/birds). Relates bird conservation interests with public health and chemical pollution control issues.
- Forestry sites: [www.webdirectory.com](http://www.webdirectory.com); [www.orestworld.com](http://www.orestworld.com)

**Upcoming Stewardship Event**

January 22, 2000: *Trees, Wildlife, and Your Back Yard.* A community wildlife and forestry seminar on creating back yard wildlife habitat, tree care, pruning techniques, insects and diseases, reforestation, the Roadside Tree Law, Greenways, and Maryland’s Big Tree program. $5 registration includes lunch. Sponsored by Frederick County Forest Conservancy Board. Call 301-473-8417.

An alert reader noted additional information that should have been included in the summer Branching Out article on posting your property. The 8x2" blue strips must be vertical and made with oil-based paint.