

Bamboo

Introduction

Bamboo is a perennial, woody-stemmed grass known for its rapid growth habit and variety of uses. Edible young shoots are used in cooking, while mature canes (or culms) are harvested for timber-uses that include fences, stakes, fishing poles, crafts and furniture. Bamboo is also planted as a landscape ornamental and for various conservation purposes. Bamboo foliage is reportedly a nutritious forage for grazing cattle. River cane bamboo (*Arundinaria gigantea*) is native to Kentucky and much of the southeastern U.S.

Marketing and Market Outlook

Potential growers should thoroughly investigate all aspects of growing and marketing this crop before considering production. While bamboo has become the focus of increased attention as a potential alternative crop, there are a number of serious limitations to commercial production. A major concern is its reputation for being invasive and difficult to eliminate. Only growers willing to install appropriate barriers to prevent unwanted spread should consider pursuing this enterprise. Additionally, bamboo requires a long-term investment and markets are uncertain.

Potted bamboo can be marketed wholesale to garden centers, nurseries and landscape contractors. Bamboo plants can also be sold for retail prices at local farmers' markets. Mail order and Internet markets will involve nationwide sales and shipping. Locally adapted bamboo should have a marketing advantage



over less hardy plants from out-of-state sources.

Fresh bamboo shoots are considered a tasty alternative to the more readily available canned import. However, many U.S. consumers are unfamiliar with preparing and cooking bamboo. Providing instructions, along with recipes, will be an important aspect of promoting fresh shoots. Health food stores, farmers' markets and ethnic markets are potential marketing avenues. Restaurants, particularly those specializing in Asian or vegetarian dishes, may also be interested in purchasing fresh bamboo.

Bamboo canes are hard and durable, but lightweight, making them suitable for a number of on-farm uses (trellises, fences, stakes, etc.)

Marketing green or cured culms will require competing with imports. Direct sales to farmers, craftsmen and furniture makers



may be possible. Identifying a niche market with repeat buyers will be essential to success.

Production Considerations

Site selection, planting and maintenance

Bamboo does best in well-drained, moist, fertile soils. It will not, however, tolerate continuously swampy or water-logged sites. Land unsuitable for row crops, such as hillsides, can be used for bamboo. It is essential to select bamboo species that are both hardy to Kentucky and suitable for the intended end-use(s). A number of bamboos can be harvested for both poles and shoots, while other species are only suitable for specific uses.

The purchase of plant material correctly identified to species and cultivar should be arranged with a reputable nursery well in advance of the intended planting date in the spring. Young plants need to be protected with a sunscreen that provides shade in the heat of the day, as well as a wind break.

Transplants must be well-watered for at least the first two years. Irrigating an established grove is not as critical; however, watering does result in increased productivity. Container-grown plants are heavy feeders and will require more frequent irrigation than field-grown material. Regular thinning of mature groves aids in ease of harvest and helps maximize yields.

Bamboos are typically classified as “runners”, which spread aggressively several feet per year, or “clumpers”, which spread only a few inches per year. Most of the bamboos hardy to Kentucky are runners and, therefore, potentially invasive.

Limiting rhizome growth will require container production or installing a root barrier 2 to 3 feet deep around the grove. Fiberglass sheets or high density polypropylene make the most effective, long-lasting barriers. Natural barriers such as streams, ponds and native forests can also help to contain bamboo. In addition, a well-traveled gravel road may deter spread in that direction. Herbicides, rhizome pruning and mowing are often unsuccessful in confining bamboo.

Planning groves for future growth potential is essential since individual plants can spread to cover as much as 50 square feet after 5 to 10 years.

Plants for replanting/expanding groves or nursery sales can be vegetatively propagated by division or rhizome cuttings. Bamboo is divided by digging up the young plants that emerge in established plantings. Removing a portion of the rhizome, along with the surrounding soil, improves the success rate of transplanting.

Nurseries are generally started with two- to three-year-old rhizome cuttings. Rhizomes with healthy buds are cut into suitable lengths and planted in a trench. After two seasons, plants are dug and either potted or planted in a permanent site. Additional rhizome cuttings for the next planting are also taken at this time.

Pest management

Only a few diseases or insect pests have been reported on U.S.-grown bamboo. These include spider mites, scale and rust. It is important to keep groves weed-free from planting to establishment. Controlling weeds in nurseries is also important. Methods of weed control include mowing, hand weeding, mulches and herbicides.

Harvest and storage

Harvesting for both poles and shoots requires careful management in order to maintain the productivity of the grove. The largest and straightest shoots should be left to mature into culms which will replace the ones that will be harvested. Shoot harvest should be limited to those that are small or mid-sized, especially in the early years of the grove. It can take a grove 7 years or more to mature and reach full production.

Culms must be at least 3 to 5 years old before harvesting for wood uses. Canes are cut by hand close to the ground either in late winter prior to shoot emergence or in summer after shoot harvest. The branched tops, which are not profitable for timber use, are removed. Tops can be disposed of by feeding them as green chop

to livestock or shredding them for mulch. The lower, unbranched culms are either sold “green” or cured for several months in a well ventilated shed or barn.

Edible shoots are harvested at the first indication that tips are emerging from the soil. They are cut by hand below ground at the point of rhizome attachment. Timeliness is critical since shoots grow rapidly and can quickly become tough. Shoot emergence occurs over a period of several weeks. Harvested shoots are washed and weighed prior to packaging in crushed ice. Shoots can also be frozen and sold off-season.

Labor requirements

Bamboo production, whether for shoots, timber or both, is highly labor- and management-intensive, particularly during the initial years of establishment and production. Hand labor is required for all aspects of production and harvest.

Economic Considerations

Initial investments include land preparation, putting in a root barrier, purchase of plant material, plant establishment, and installation of an irrigation system. The level of investment required, combined with the absence of clear market channels for farm-grown bamboo in the region, makes larger-scale bamboo plantings a risky source of potential farm income in Kentucky. The highest profitability potential for bamboo in Kentucky appears to be growing

shoots for the niche food market (farmers’ markets, upscale restaurants). In order to be economically advantageous, bamboo should be marketed as part of a well-planned mix of specialty food crops, or grown as part of a well-designed agroforestry management program. Nurseries growing commercial quantities of locally adapted species and varieties could also profit from bamboo.

More Information

Internet articles

- Bamboo: A Multipurpose Agroforestry Crop (ATTRA, 2001)
<http://attra.ncat.org/attra-pub/bamboo.html>
- Growing Bamboo in Georgia (University of Georgia, 2001)
<http://pubs.caes.uga.edu/caespubs/horticulture/GrowingBamboo.htm>
- Growing Bamboo in the Landscape (University of Georgia)
<http://pubs.caes.uga.edu/caespubs/horticulture/bamboo.htm>

Bamboo Web sites

- American Bamboo Society (*Web site includes information on species/cultivar winter-hardiness*)
<http://americanbamboo.org>
- Bamboo Australia
<http://www.bamboo-oz.com.au/index.html>
- Extension Bamboo Research (Washington State University)
<http://agsyst.wsu.edu/bamboo.htm>