COOPERATIVE EXTENSION SERVICE
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What's New with Bamboo?

New products are introduced in the market each day, often leaving consumers feeling confused and uninformed about features and claims of these goods. Products that are made of bamboo or incorporate bamboo are one example. Bamboo can be found in everything from bath towels to kitchen floors. Discovering the origins and qualities of these lines of products can assist with determining whether these are products for you.

What is bamboo?

Bamboo is the general name used for a number of perennial, woody-stemmed grasses. Its hollow stem helps it achieve its status as one of the fastest growing plants in the world. Some bamboo species are capable of growing up to 3 feet or more per day. Over 1,200 species of bamboo are known to exist worldwide, with an estimated 54 million acres of this often invasive plant distributed throughout the forests of Asia, Africa and South and Central America.

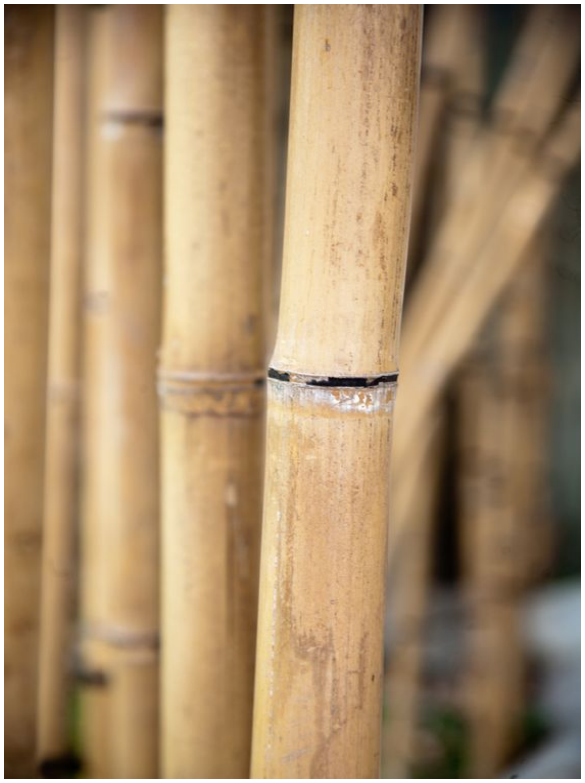
Where and how is it grown?

More than 300 species of bamboo grow naturally in many parts of the world, but it can also be planted on controlled bamboo plantations. Bamboo is a notable economic and cultural contributor to many countries. All parts of the plant are used for purposes including food for humans and livestock, fine-quality paper, construction materials and medicines. While only three species of bamboo grow naturally in the United States, more than 100 introduced species can be grown here. Bamboo grown in Kentucky (often called cane or river cane) is best suited as an ornamental nursery crop and is unsuitable for most consumer products. A word of warning to those growing bamboo — it can be invasive. Once established in a landscape, it can take over and invade many other garden plants. Homeowners are reminded to keep bamboo in a controlled area to avoid unwanted spreading.

Bamboo reproduces by sending out shoots from “rhizomes” — an underground plant stem that sends out roots from the lower side and shoots and leaves from the upper side of a new plant. It is adaptable to a wide range of soils, from organically poor to mineral rich and from wet to dry, making these plants useful for land rehabilitation.

Bamboo plantations are established by gathering young stems with attached rhizomes and replanting in desired locations. Once the young plants are established, they grow to full height within one year, but require four to seven years (and in some cases up to 10 years) reaching the size and quality required for use as construction material or as a raw material for consumer products such as flooring.

Is it really that renewable?



Bamboo flooring and other products have become a leader in the “green trend” among U.S. homeowners in recent years, based largely on the high growth rate and natural regeneration of the bamboo plant. Promotional materials feature information that indicate an oak tree can take up to 120 years to grow to maturity and that bamboo can be harvested in three to seven year cycles. This quality of being a rapidly renewable resource has environmental advantages over some of our traditional raw wood materials. Keep in mind, however that most of the bamboo used for products in our consumer market are grown overseas and transportation costs and pollutants decrease the “green appeal.” Statements that bamboo regenerates without the need for replanting are true, but ignore the reality that some natural forests are being cleared to make way for bamboo plantations, decreasing the diversity of our forests. While bamboo can help prevent soil erosion, the time required for the plant to establish can leave the land vulnerable.

We often hear that bamboo makes a good habitat for a large number of insects, birds and animals. While true, other species that prefer traditional forests are affected.

Similarly, claims that bamboo requires minimal fertilization or pesticides is true, but does not give all the details. Fertilization and pesticides are sometimes used to obtain the high yields often cited in promotional materials. In addition, hardwood forests are also grown without the use of these products.

Products around the home

Today's consumers are looking for ways to be a more environmentally conscious shopper. Bamboo products are popping up in many home and clothing items, touting their superiority as a "greener" choice. While many of the claims are true, some are misleading.

Textiles – Many textile products on the market today boast being made of bamboo. The Federal Trade Commission defines rayon fiber as a manufactured fiber composed of regenerated cellulose; in this case, the cellulose is bamboo. Rayon from bamboo produces a nice, soft fiber and resulting product. Unless a product is made directly from bamboo fiber, often called "mechanically processed bamboo," it cannot be called bamboo. Therefore, the majority of bamboo textile products, including all soft-fiber products made from bamboo, are actually rayon. They must be labeled and advertised using the generic name of "rayon" or "rayon made from bamboo."

Rayon made from bamboo is highly absorbent, easy to dye, drapes well and is considered very comfortable; it can be a great choice for towels, sheets, fashion fabrics and other clothing accessories such as socks. Due to the lower strength property and increased tendency to wrinkle, however, most products containing rayon from bamboo are blended with other fibers to produce more durable products. Towels made with a high percentage of cotton combined with rayon from bamboo (65 percent - 35 percent) are soft and absorbent, but will fade after repeated washings if dyed.

While most bamboo consumer textile products in the United States are technically rayon and therefore share its many appealing properties, some undesirable results occur as well. When chemical extraction methods are used to obtain the textile fibers, (the same method of producing rayon from other forms of cellulose) the chemical used in the process may emit hazardous pollutants into the air and/or waterways. These resulting textile products should not claim they are made using an environmentally friendly process.

After chemical extraction, the resulting rayon from bamboo has lost many of the properties of the original plant in the finished rayon product. For example, there is no evidence that rayon made from bamboo retains the antimicrobial properties of the bamboo plant, as some claim. Even though bamboo is used as the original plant source, after processing into rayon fiber no

traits of the original plant are left. Rayon products made from bamboo cannot be called biodegradable. Most of these products will be recycled into other items or

sent to the landfill and will not degrade any quicker than other fibers.

While rayon made from bamboo produces soft, absorbent towels, those made of 100 percent rayon from bamboo are denser and more absorbent than traditional cotton towels. A rayon or rayon from bamboo towel absorbs more water than a cotton towel due to the characteristic absorbency of rayon, which can be as much as 500 times its weight. These towels take much longer to dry, adding to energy use and costs. In addition, rayon towels are not durable due to the nature of rayon itself, which is weaker when wet. Therefore rayon products may wear out more quickly with frequent washings.

Rayon products in our market are made from a variety of cellulose sources, not just bamboo. Consumers are able to purchase rayon made from regenerated cellulose from trees native to the United States, providing the product benefits and reducing transportation costs and pollutants.

As previously mentioned, another textile option for bamboo is produced by mechanically extracting fibers from the bamboo plant. This process is expensive and time consuming, and textiles made from these bamboo fibers may not feel silky smooth. These products may be labeled "bamboo linen."

Flooring — Although bamboo flooring has been widely used in East Asia and the South Pacific for years, it is only recently growing in availability and popularity to U.S. homeowners. Both hardwood and bamboo flooring are available in a wide range of price points, depending on finishes and the manufacturer. Like all floor choices, there are many considerations.

Bamboo floors are generally hard and stable, but like all flooring you get what you pay for. There are less expensive bamboo flooring products on the market that are made from immature bamboo, however these products can wear quickly and result in an unhappy consumer. Moso® bamboo is native to China and considered a good species to look for when purchasing bamboo flooring.

Bamboo flooring comes in two types: vertical or horizontal and strand. Horizontal bamboo flooring is made by placing the bamboo stalks horizontally, with the natural "knuckles" or joints of the bamboo plant showing. Vertical bamboo flooring has the bamboo stalks laid on their edge and results in a totally different look. Both products are similar in price and quality; consumers choose the look they prefer. Strand bamboo flooring consists of many bamboo "strands" or pieces that are adhered together and manufactured into boards. Strand is more costly; however it is stronger and results in a stable floor that resists expansion and contraction. All bamboo floors are installed like traditional hardwood floors — they can be nailed, glued or set as a floating floor. Bamboo flooring provides another option for those who like the look and appreciate a new flooring option. Bamboo flooring is available in a variety of looks for today's consumer. Previously natural and caramelized tones were only available, but

today there are many stained options and textures to choose from.

The rapid growth and natural regeneration properties of bamboo result in accurate claims as a “green” resource. Many hardwood species take 60-70 years to reach harvesting age. Several of the environmental benefits of bamboo, however, are shared by traditional wood. Regeneration is not limited to bamboo, as this practice is widely used in the hardwood forest of North America through management. Although the bamboo can be harvested more frequently, many trees produce as much biomass per year as bamboo, but trees store this production for longer so fewer harvesting resources (fuel, machinery, etc.) are required for each ton of wood collected. Much of the bamboo we use for flooring has to be shipped from China or other great distances, resulting in higher energy and pollution costs.

It is easier to make flooring from hardwood trees than bamboo. Since bamboo stems are hollow, bamboo flooring panels are made from layers of sliced bamboo that have been glued together. These resulting laminated strips increase concern for this flooring breaking down sooner. Hardwood flooring consists of solid pieces of wood that are sawed from the tree itself, so less processing energy and fewer materials are required. Since the hard surface layer of bamboo flooring is relatively thin, it may not be able to be sanded and refinished. Due to the relative newness of bamboo flooring in our markets, many of these concerns cannot be addressed at this time.

Traditional hardwood flooring is also available in a variety of colors, textures and finishes for today’s consumer. The value of wood flooring in today’s homes is extremely high and conveys quality. Even the flaws in

traditional hardwood are highly prized in flooring. No two pieces of hardwood flooring are the same. It is also known for long life and can easily last 100 years. Due to the newness and limited use of bamboo flooring, we are unsure of its lifetime.

Cooking Accessories ─ Bamboo products are turning up in our kitchens, too. Wooden spoons, cutting boards and other utensils are now being produced from imported bamboo. These bamboo products provide many of the same qualities as our traditional wood products. They are reasonable in cost and lightweight, are easy to clean and require just a quick wash with soap and water. Dishwasher cleaning is not recommended. Durability on heavily used products such as cutting boards seem dependent on how the boards are constructed — a concern with any wooden board. They provide another alternative for consumers looking for new options and a new look.

Consuming bamboo

Bamboo shoots are young, new canes that are harvested for food before they are two weeks old, or one foot tall. They are crisp and tender — comparable to asparagus — with a flavor similar to corn. Bamboo shoots can be boiled, sautéed or braised to accompany many main dishes. One cup contains only 14 calories and one half gram of fat, but supplies 2.5 grams of fiber and nearly 20 percent of our daily potassium recommendation. Bamboo shoots are also a good source of antioxidants that appear to have anti-cancer properties. Although not available from our native cane varieties, imported bamboo shoots are often found in Asian cuisine and available canned and fresh in specialty markets. Fresh bamboo shoots can be stored in the refrigerator for up to two weeks and need to be cooked before consuming. Canned bamboo shoots are edible without further cooking.
For information on preparing bamboo shoots, visit:
http://agsyst.wsu.edu/bambroc.pdf.

So many options…

Bamboo products are a new and interesting option for today's consumer. As with any product, there are pros and cons to these items and it is up to the consumer to choose what works best.

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