

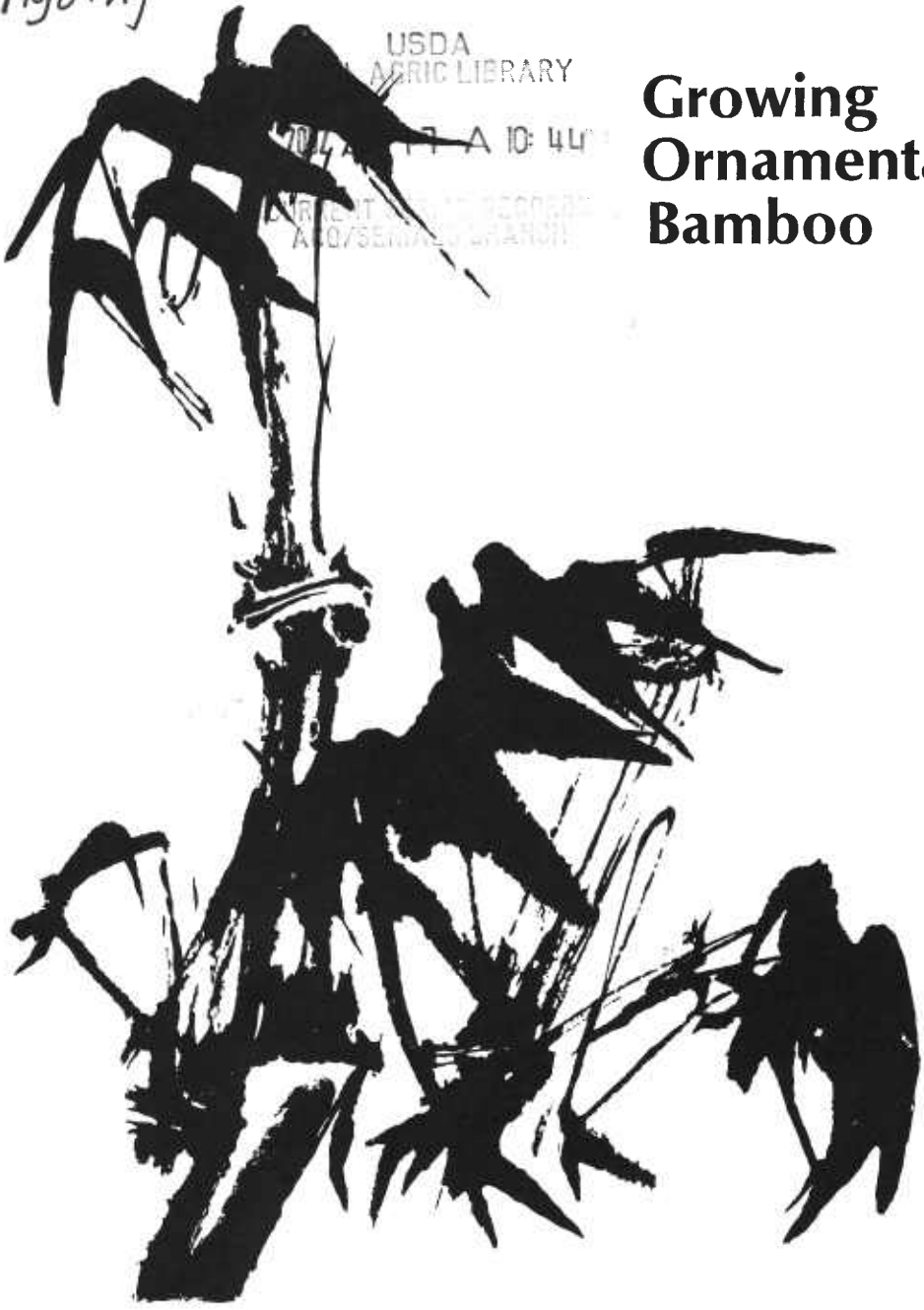
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Growing Ornamental Bamboo



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On January 24, 1978, four USDA agencies—Agricultural Research Service (ARS), Cooperative State Research Service (CSRS), Extension Service (ES), and the National Agricultural Library (NAL)—merged to become a new organization, the Science and Education Administration (SEA), U.S. Department of Agriculture.

This publication was prepared by the Science and Education Administration's Federal Research staff, which was formerly the Agricultural Research Service.

Growing Ornamental Bamboo

Bamboo needs warm temperatures to grow successfully. Even the hardiest species are killed by temperatures lower than -10° F. Some bamboos cannot survive temperatures below freezing.

Like most other ornamental plants, ornamental bamboo grows best in fertile, well-drained soil. Although the plants need a generous supply of water, they should not be planted in a swampy location.

HOW BAMBOO GROWS

Bamboo canes grow from rhizomes, which are underground stems. Rhizomes of some species, such as *Bambusa multiplex*, spread slowly; new canes rise from them close to the bases of old canes. These slow-spreading species are called clump bamboos.

Other species have rhizomes that spread rapidly. Rhizomes in these species may grow laterally 2 to 3 feet from the original plant in the first year. The rate of growth increases each year after the first. The rhizomes may spread as far as 15 feet in one season. These species with rapidly spreading rhizomes are the running bamboos. They belong to several genera including *Phyllostachys*, *Sasa*, and *Arundinaria*.

Soon after a bamboo cane appears above the ground, it is as thick as it will be when fully grown. The cane lengthens rapidly; usually it grows to its full height in 5 to 8 weeks, sometimes growing at a rate of a foot or more a day. The wall of the cane grows thicker and hardens for several years as the cane matures. Canes should be mature before they are used.

Canes of maximum size are not produced by the bamboo plant until several years after the rhizome is first planted. The larger species usually



PN-970

Newly emerged cane of running bamboo. The cane is thick as it will be when mature. It will grow rapidly in height, however, reaching a mature height of more than 60 feet in 5 to 8 weeks.

take longer, to reach mature size. Sweetshoot bamboo (*Phyllostachys dulcis*) is a moderately large bamboo that reaches mature size quickly. Bamboo plants shed their leaves and grow new leaves every spring. Individual canes usually live 5 to 8 years.

BUYING PLANTS

Bamboo planting material is most commonly sold as started plants that can be set in the garden as soon as they are received. Some nurseries also sell rhizome cuttings of running bamboo. Rhizome cuttings are less expensive than started plants, but they require much longer to produce a grove of full-sized bamboo.

ORNAMENTAL SPECIES

Many species of bamboo are suitable for ornamental purposes. The species described here were selected

because of their distinctive appearance, availability, or adaptation to low temperatures.

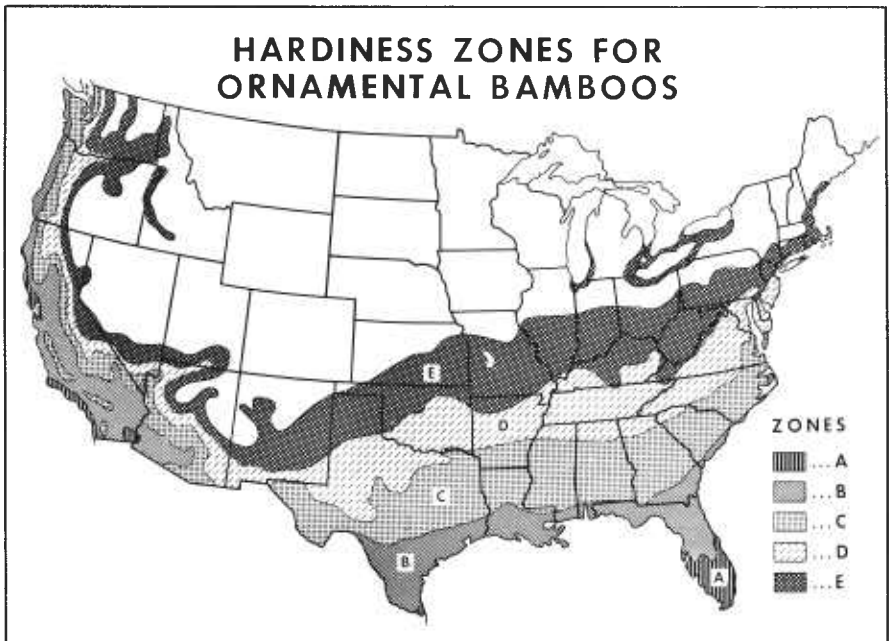
The zones referred to in the descriptions of adaptations are illustrated in the map below.

Clump Bamboos

Clump bamboos are ideally suited for ornamental uses in their area of adaptation. They can be planted as a hedge or as a single clump for specimen plantings, as they spread very slowly and are easy to keep within bounds.

Clump bamboos are native to tropical or subtropical regions; their culture is restricted to the warmest parts of the United States (zones A and B).

Oriental hedge (*Bambusa multiplex*) is the most widely grown species. It is available in its typical form and in seven cultivars. One cultivar—Chinese Goddess—is a dwarf; other



cultivars have distinctive characteristics of stem or leaf. All are small bamboos with thin-walled canes. Most of their nodes or joints will have a cluster of small, short branches. This species forms very dense clumps. Canes at the edges of the clumps grow outward, giving the clumps a bushy appearance.

Running Bamboos

The running bamboos are hardier than the clump bamboos. Some species of running bamboo can be grown as far north as Boston. The native North American bamboos, *Arundinaria* species, belong to this general group.

These bamboos are more difficult to keep in bounds than the clump bamboos. However, they are desirable as ornamental plants because of diversity in their habit of growth, appearance, and size. All the *Phyllostachys* species mentioned here are edible, and several are especially good producers of shoots for food.

Descriptions of some more desirable species of running bamboo follow.

Fishpole bamboo (*Phyllostachys aurea*) grows to a height of 30 feet with a diameter of 1-7/8 inches. It has a section of shortened internodes, often near the base, that may serve as the handle of a fishpole. The species is one of the most widely available bamboos in this country. It grows in zones B, C, and D.

Yellowgroove bamboo (*Phyllostachys aureosulcata*) canes grow 33 feet tall and 1-1/2 inches in diameter. The canes are green and during the first year of life have yellowish grooves above the points where the

branches are attached. Leaves of this species are up to 6 inches long when the canes are young. As the canes grow older, these leaves are replaced by smaller ones. This species is adapted to zones B, C, and D.

Sweetshoot bamboo (*Phyllostachys dulcis*) grows up to 39 feet tall and may be 2-5/8 inches in diameter. Canes are usually crooked and not very strong. Shoots have no bitter taste and are better for food than most other bamboos. This species reaches mature size more rapidly than most bamboos. It is adapted to zones B and C.

Big-noded bamboo (*Phyllostachys nidularia*) grows 33 feet tall and reaches a diameter of 2 inches. Its enlarged nodes give the bamboo a distinctive appearance. The flavor of its shoots is excellent. This species will grow in zones B and C.



PN-5945

A mature growth of Sweetshoot bamboo. This relatively small bamboo produces large numbers of edible shoots.

Black bamboo (*Phyllostachys nigra*) and its two larger cultivars, Henon and Bory, are an interesting and useful group of bamboos for zones B and C. Black bamboo is small; its maximum height is 25 feet; and it is usually less than 1-3/8 inches in diameter. Its canes are black, as the name implies. The cultivars Bory and Henon are not black but belong to the same species. They are tall, strong bamboos, reaching a height of 50 feet and a diameter of 2-1/2 inches. The canes are green when young but take on a light gray color with maturity. Canes of Bory also develop oblong brown splotches.

Madake or Giant Timber bamboo (*Phyllostachys bambusoides*), one of the largest of temperate-zone bamboos, reaches a height of 72 feet and a diameter of 5-3/4 inches. Distinctive cultivars of this species include Crookstem, which has



PN-5946

Henon, a hardy, rapidly spreading bamboo. Young Henon canes are green and turn light gray as they mature.

crooked stems near the base, and Castillon, which has a yellow cane with vertical green stripes. The species is adapted to zones B and C.

Moso or Velvet bamboo (*Phyllostachys pubescens*), in the same size range as Madake, tends to be a little less in height and a little greater in diameter. Its canes taper more from the base and are not as heavy and strong as those of Madake. Its leaves are the smallest of the *Phyllostachys* species. Although large and very attractive, this bamboo is more difficult to propagate and grow than most other species. It is also adapted to zones B and C.

Metake or Arrow bamboo (*Pseudosasa japonica*) is a slow-spreading bamboo. Canes grow 18 feet tall and three-fourths of an inch in diameter. Leaves are medium large—5 to 13 inches long—and are evergreen in areas where the temperature does not go below 5° F. It is adapted to zones B and C.

Sasa palmata spreads rapidly if it is not restricted. Its mature canes are 7 feet tall and 5/16 of an inch in diameter. Leaves are large and bright green. It has a wide range of adaptation—zones B, C, D, and E.

Narihira bamboo (*Semiarundinaria fastuosa*) canes grow 25 feet tall and 1-3/8 inches in diameter. Leaves are up to 9 inches long. This bamboo spreads more slowly than most other running bamboos and is adapted to zones B, C, and D.

PLANTING

Prepare the soil as soon as it is workable in the spring. Loosen the soil to a depth of at least 12 inches. If the soil is heavy, add sand or cinders to improve the drainage.

Set the plants or rhizomes before they begin to sprout. Try to finish planting before March 15 in zones A and B, before April 15 in zones C and D, and before May 1 in zone E.

Clump Bamboo

If clump bamboo plants are to attain maximum size, they should be set far enough apart. The distance between plants for specimen clumps should be at least one-half the height that the plants are expected to reach when mature. For example: If the species grows 10 feet tall, set the plants at least 5 feet apart. If the species grows 45 feet tall, set the plants at least 22 feet apart.

Spacing for plants in a hedge varies with the desired height of the hedge. Follow this guide.

<i>Desired height of hedge (feet)</i>	<i>Space between plants (inches)</i>
Less than 3	4 to 6
3 to 10	6 to 12
10 to 20	12 to 24

For low hedges—less than 10 feet tall—choose a bamboo variety that has a potential height of 20 feet or less. For taller hedges, choose a variety that has a potential height somewhat greater than the desired height of the hedge.

Dig holes for individual plants and a trench for hedge plantings. Make the hole or trench about 5 inches deep.

Set the plant in the hole or trench and fill the hole with loose soil. Apply lawn fertilizer—analysis 8-6-4 or 10-6-4—at a rate of about 2-1/2

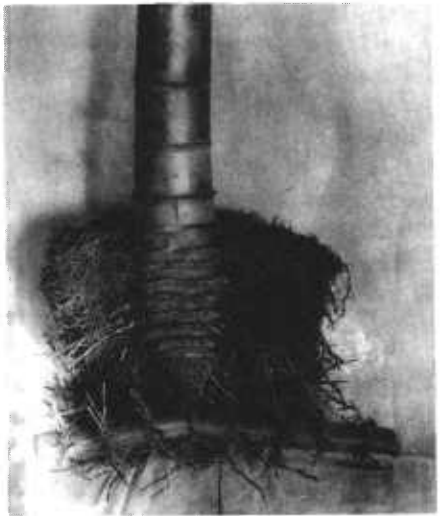
pounds per 100 square feet. Water the new planting until the soil is thoroughly soaked.

Running Bamboo

For starting a hedge with rhizome cuttings, dig a trench 12 inches deep and 18 inches wide. Use cuttings that are 12 inches long. Stand them upright about 6 inches apart along the side of the trench.

For starting a hedge with 1- to 2-year-old plants, dig a trench 18 inches wide and 6 inches deep. Set the plants 18 inches apart in the trench. Set them alternately, first on one side of the trench, then on the other. Aline the rhizomes with the sides of the trench.

For specimen plantings, use started plants. Set them in planting holes at least 6 inches deep.



PN-979

Cane of a running bamboo growing from the rhizome. New canes may arise 15 feet or more from the old canes.

After the plants or rhizome cuttings are in place, fill the hole or trench. Press soil firmly around the rhizomes and canes. Apply fertilizer at the same rate as for clump bamboo and water the new planting thoroughly.

CARE AFTER PLANTING

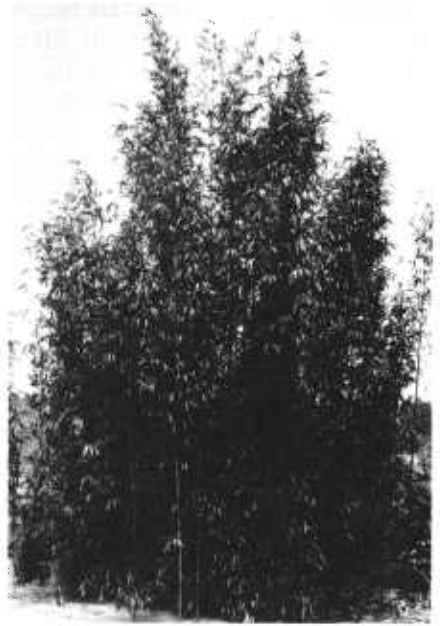
Protect newly planted bamboo from drought. Bamboo needs at least 1 inch of water every 10 days. To insure that the plants have enough water, soak the soil thoroughly around the base of the canes every 10 days from spring to late fall. Omit watering for 10 days after heavy or prolonged rains.

Pull weeds and grass from around the plants. Do not use cultivating tools to work around bamboo, as the rhizomes often grow close to the surface and may be injured by deep cultivation.

Apply lawn fertilizer to the planting every spring. Use about 2-1/2 pounds per 100 square feet.

Mulch the soil around the planting. Mulches add organic matter to the soil, help to restrict the growth of weeds, and conserve soil moisture. Dead leaves or dry grass clippings can be used for mulch. Apply a layer of mulching material at least 3 inches deep.

Prune hedges once or twice a year. Let the canes grow to nearly their full height; then cut them back to the desired height. Dead canes should be periodically removed from any bamboo planting to maintain an attractive grove. They should be sawed off squarely and as close to the ground as possible.



PN-985

Planting of Narihira bamboo. This species spreads more slowly than most other running bamboos.

PROPAGATION

Clump bamboo is most easily propagated by division. In spring, cut the canes back to a height of 2 feet or less and dig up the entire plant. Separate the clump into divisions that contain one or more canes with their rooty base. Blocks at least 12 inches square containing several canes are easier to establish than smaller divisions.

Slender-caned clumps can be divided with a sharp knife or with pruning shears. Heavy-caned clumps may have to be sawed or chopped apart. After dividing the clump, replant the divisions.

Propagate running bamboos from rhizome cuttings or clump divisions. Dig around a grove to find the rhizomes. Cut sections 12 to 14 inches

long from the rhizomes. Avoid very young and very old rhizomes. The new rhizomes, with leafy sheaths still in place, will have immature buds, while old sparsely rooted rhizomes have few buds. In either case, few shoots will be produced.

Do not let the cuttings dry. If you cannot plant them as soon as they are collected, store them in damp sawdust or sphagnum moss.

Bamboo rhizomes that are to be used to grow started plants for later transplanting should be established in a nursery.

Soil for the nursery bed should be fertile and well drained. As soon as the bed can be worked in spring, dig furrows 6 inches deep and 3 feet apart.

Plant the cuttings as soon as possible after the nursery bed is prepared. Place the cuttings end to end in the furrows and cover them with loose soil. Water them thoroughly.

The new plants can be moved after they have grown in the nursery for a

year. If they are to be shipped, however, let them grow 2 years.

Before transplanting or shipping, cut the plants back to no more than one-third of their original leaf area.

CONTROLLING RUNNING BAMBOO

Running bamboo spreads rapidly. Its growth must be restricted or it will soon form a thick jungle that extends many feet beyond the original planting.

A curb made of sheet metal, concrete, or asbestos board will prevent bamboo from spreading. A ditching machine can be used to cut a narrow ditch around the grove and the barrier poured or built into the ditch. The curb must surround the planting. The top of the curb should be about 1 inch above the soil surface, and the curb should extend 24 to 30 inches into the ground. Any joints in the curb must be lapped and secured tightly; bamboo rhizomes can force their way through very small openings.

Buildings, wide driveways, and roads also restrict the spread of bamboo. If the bamboo is planted in a turf area, mowing will destroy unwanted canes by cutting them while they are still small and soft.

Unless the planting is curbed, rhizomes of a running bamboo will spread beyond the edge of the grove a distance approximately equal to the height of the canes. If you plan to grow bamboo without curbs, be careful in choosing a planting site; protect yourself and your neighbor from unwanted bamboo in flower beds, hedges, and shrubbery plantings.



PN-987

Planting of Arrow bamboo. The planting has been kept in bounds by frequent mowing, which destroyed unwanted canes.

BAMBOO SHOOTS FOR FOOD

The *Phyllostachys* species produces edible shoots. Shoots to be eaten should be dug immediately after they begin to emerge from the soil. A narrow spade should be pushed straight downward into the soil on all sides of the shoot. When it is severed from the rhizome and the soil is loosened, the shoot can be pulled from the soil.

A bamboo shoot is covered with sheaths that must be removed. First, the bottom (approximately one-third) of the shoot is cut off. The outer, tougher, sheaths should next be pulled off with the fingers. Then the tender inner sheaths can be cut off above the growing point of the shoot and easily peeled from the shoot.

The shoots of *Phyllostachys dulcis* have no bitter taste. All others should be boiled for at least 5 minutes and the water discarded before they are cooked further or mixed with other foods.

Bamboo shoots are used extensively in traditional Chinese cooking and may be easily included in many other dishes.

ERADICATING BAMBOO

Eradicating bamboo is accomplished by first removing all top growth, and then destroying the new shoots as they emerge. If the ground is level and the canes can be cut off very close to the ground, mowing is the best way to destroy new shoots. If the ground cannot be mowed, the canes should be cut down and the area plowed to destroy new shoots as they emerge. Several plowings or mowings will be necessary, but the rhizome need not be removed; it will become depleted and die.

A small clump of bamboo could more easily be eradicated by digging up and destroying the entire plant. Small species of running bamboo may be difficult to eliminate by mowing. Their rhizomes should be dug and destroyed.

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