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Update on Bamboo in the Southeast

Golden bamboo (*Phyllostachys aurea*), planted as an ornamental and historically for use as fishing poles, is a familiar sight spreading around old homesteads. Sometimes confused with native switchcanes (*Arundinaria spp.)*, golden bamboo is one of over a 1000 species of large woody grasses generally referred to as bamboos. Golden bamboo can be quite invasive, but not all bamboos are weedy. Clump forming bamboos are unlikely to spread, while running bamboos have extensive and spreading rhizome systems. Running bamboos can become quite weedy if not carefully controlled.

A renewed interest in growing bamboo for biofuels, fiber and wood products in the Southeast is on the rise. However, the potential invasiveness of bamboo is of some concern. Moso bamboo, a close relative of golden bamboo is the primary species currently under consideration for commercial use in the Southeast. The largest temperate bamboo, moso can reach heights of over 75 feet and over 5 inches in diameter. (Two scientific names - *Phyllostachys pubescens* and *Phyllostachys edulis* - are currently in use for moso bamboo.) Scientific data concerning the growth and behavior of moso bamboo when grown in the Southeast is unavailable, but the following provides a brief summary of basic bamboo biology.

Bamboo shoots emerge from a dense rhizome system which is generally located within the upper 12 inches of soil. The rhizomes can spread outward 20 to 30 feet before sprouting. Shoots elongate rapidly, giving the impression of rapid growth and high productivity. However, re-distribution of reserves from the rhizomes is the primary source of this rapid growth. Scurlock et al. (2000) and research from Japan (Isagi et al., 1997) suggest that overall productivity of bamboos is unlikely to be much greater than other C_3 bio-energy crop species. Studies regarding moso bamboo productivity, carbon sequestration potential and economics of production in the Southeast have yet to be conducted.

Flowering and seed production by *Phyllostachys spp.* is infrequent, occurring on cycles of up to 60 or 70 years. Invasive spread of these bamboos by seed is therefore unlikely, but cannot be ruled out completely. Outward spread by rhizomes will occur unless edges of the grove are carefully and consistently maintained

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with frequent mowing, mechanical barriers and/or trenches. Abandoned moso bamboo plantations in Japan increased 50% in size over a 25 year period (Suzuki and Nakagoshi, 2008).

Once established, bamboo can be very difficult to control. Plants can be dug up, but any rhizomes remaining in the soil will re-sprout. Frequent cutting of the entire grove can reduce underground reserves and eventually control a planting. Cut stems can also be treated with systemic herbicides such as glyphosate or imazpyr, but multiple applications are typically required. Foliar sprays may suppress growth but are difficult to apply to mature stands and rarely result in complete control. Granular formulations of imazapyr have also been effective but must be used very carefully due to potential non-target injury of other plants.

Dense shade and possible allelopathic affects allow little if anything to grow beneath bamboo. Young shoots of moso bamboo are edible, but use by native wildlife has not been documented. While native *Arundinaria* canebrakes provide unique wildlife habitat, extensive groves of non-native bamboos have not been reported to fulfill the same role.

Summary While there is current interest in growing bamboo in Alabama, we have very little scientific data to support the widespread planting of bamboo. Furthermore, we have very little data to support the idea that bamboo is a "green" or more environmentally friendly alternative to other biofuel, wood, or fiber species. Finally, the relative merits versus the risk of moso bamboo have not been investigated in Alabama. Therefore, we recommend caution in proceeding with any large scale bamboo plantings without additional study.

References

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