

MSPMC Projects

Sweet Potato Cover Crops

Cover crops are an integral part of any cropping system to help mitigate erosion and to improve soil quality. Normally, sweet potato production practices are highly-erodable due to extensive tillage operation prior to transplanting, cultivations during the growing season, and one tillage after the crop has been harvested. A single field may see as many as 5 disking operations, 3 beddings, 4 cultivations, and 2 field cultivator operations after harvesting. Erosion losses may reach 10 tons/acre.

In an effort to assist farmers with Farm Bill programs and to insure sound recommendations, a study was initiated early last fall for sweet potato cover crops and its possible effects on the production system, costs, and crop production/quality. Cooperators include Jani Earp, the landowner, Dr. Bill Burdine, MSU Extension Area Agronomy Agent, Robert Wimbish, NRCS Area Agronomist, Dr. Seth Dabney, ARS National Sedimentation Laboratory Research Agronomist, along with the MSPMC staff.

The study field was located near New Houlika, MS in Chickasaw County. It was soil-sampled and fertilized according to Mississippi State University Soil Laboratory recommendations. Overall trial area is 1.0 acres with individual plot area being 0.0161 acres. The area was disked and hipped to four rows 40" centers wide x 35" length. Legumes were inoculated using the correct strain of rhizobium bacteria, and crops were seeded using hand-operated broadcast spreaders.

Stand survival was visually estimated in late fall. Percent cover measurements were made several times in the spring. Two one-foot square dry matter samples were collected from random locations within each plot prior to cover crops being desiccated using glyphosate. Plots were mowed to allow for improved transplanting of sweet potato slips.

In late summer, Dr. Burdine will store, grade, and weigh roots from Rows 3 & 4 to determine yield. Grades will be U.S. #1, U.S. #2, and Cull. In addition, twenty-five roots from each plot will be randomly subsampled to evaluate for soil-borne insect damage.

First Tee of Memphis

The MSPMC supplied an established wildflowers and varieties of warm season grasses to the First Tee of Memphis last fall. This effort was coordinated through the Shelby County SWCD, the NRCS Memphis office, Plant Materials Specialist Sherry Surette, and District Conservationist Andy Neal. Activities for this program are organized through Vince Alfonso, Jr., former Executive Director of the Mid-South Junior Golf Association & The First Tee of Memphis.

The Mid-South Junior Golf Association & The First Tee of Memphis are committed to providing youth a vehicle through which they can have positive experiences in a non-threatening environment. The objective is to instruct participants in the basic skills of golf and to foster an appreciation of the discipline and sportsmanship required in the game. A dynamic curriculum, supportive instruction, and positive character building are indicative of the programs experienced by participants.

Black-eyed susans, claspington flowers, and plains coreopsis were planted along with purple top *Oridens* on the back slopes of the teboxes. The purpose of these plantings was to use native species that provide visual aesthetics and to reduce maintenance requirements (mowing). Wheat was planted to provide soil stabilization over the winter and in the spring, a buffer of switchgrass, indian grass, big & little bluestem were planted to provide future erosion control.

Native Bamboo Study

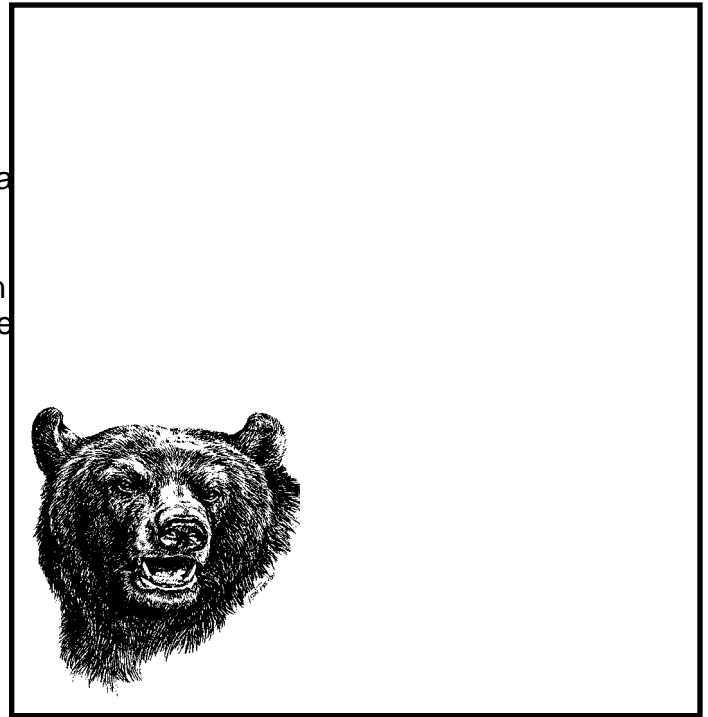
The MSPMC joined a cooperative study to improve establishment methods for native bamboo (*Arundinaria gigantea*) in the southeast. Dr. Brian Baldwin, an Associate Professor of the Plant & Soil Sciences division at Mississippi State University in Starkville, and Margaret Certain, a graduate student from the University of Tennessee in Memphis, share the same objective: to restore extensive colonies of native bamboo commonly known as "canebrakes".

Before European settlement, canebrakes once flourished along water courses and in the floodplains throughout the southeast. They created dense zones that helped curb soil erosion and flood damage, while providing a necessary habitat to a diverse assembly of wildlife, amphibians, and several rare plant species. Due to overgrazing, clearing for agricultural purposes, and urbanization, by the middle of the 20th century, most of the large colonies of native bamboo became nonexistent. They are now considered to be critically endangered ecosystem that has led to the demise of several federally listed species such as the Bachman's/Swainson's warbler and the American black bear.

In 2001, MSPMC attempted to propagate native bamboo for the Mississippi Band of Choctaw Indians in an effort to restore their declining stands. Culturally known as "swamp cane" to the Choctaw tribe, native bamboo is used for the basketry that were originally used for utilitarian purposes and are now prized works of art and emblems of their heritage.

Field propagation of two species *Arundinaria gigantea* and its smaller form (ssp. *tecta*) were unsuccessful, however greenhouse production using three different growth media: perlite, 1:1 (v/v, perlite/peat moss) and ProMix BX commercial potting soil proved to be a feasible method with a 90% success rate.

Currently, a combination of field and greenhouse production is being studied at the center. Dr. Baldwin provided us with year-old plants that were taken from an older stand in Oktoc, MS in March 2006. Propagules with 1-2 inch rhizome sections were planted in flats and treated with plant hormones to stimulate sprouting. By August, the plants were transplanted in 3 inch pots and a combination of fertilizers were applied to measure growth variables (base fertilizer, base fertilizer + nitrate, base fertilizer + phosphate & base fertilizer + nitrate & phosphate).



In late March of this year, we transplanted Dr Baldwin's stands on two different sites. One is a well drained, gentle slope (8%), facing west that receives full sun. The other is a bottom site that occasionally floods and receives partial sun. Despite the unusually dry weather most of them have survived.

Margaret Certain's greenhouse study did not achieve successful results. In mid-March of this year, several culms without rhizomes were planted in a sand medium that was treated with a combination of phytohormones to stimulate new growth from the shoot nodes. Normally, sprouting would occur by May. Mrs. Certain speculates that late establishment in the dormant growth period could have been the main reason why these plants did not germinate by late spring. In previous studies, propagation had better success when planted earlier in the dormant season (Nov-Feb).

Whether the motive is to restore canebrakes for a variety of conservation efforts or to maintain its existence for cultural practices, finding an efficient method for native bamboo production has been a long-term goal here at the center.

Out & About with the Plant Materials Specialist

Poison Ivy & Poison Oak

What's the difference?

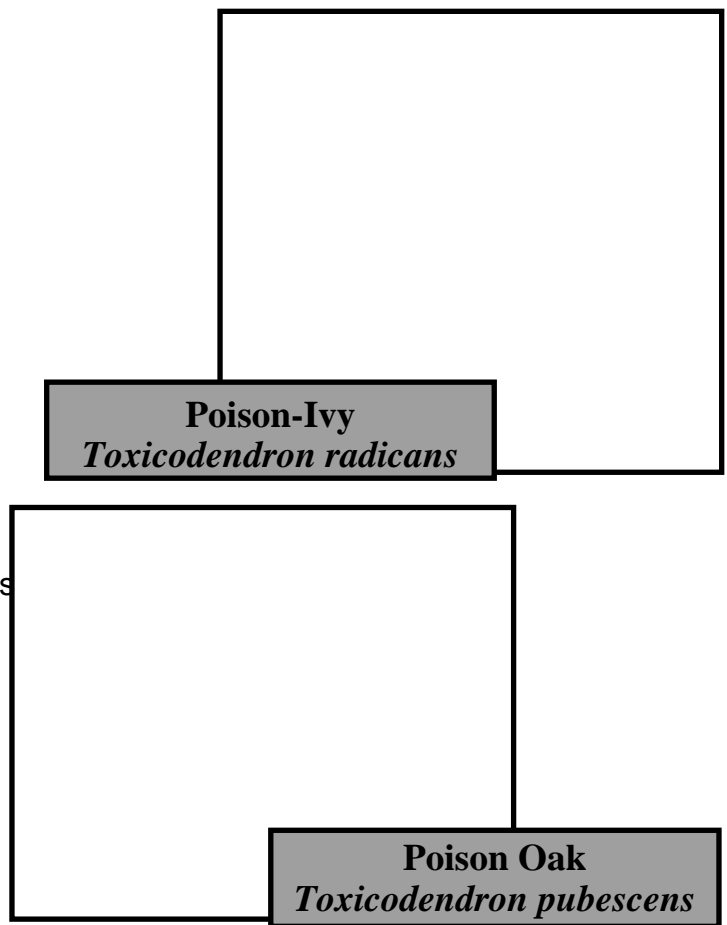
By Sherry Srette, Ph.D.

Many of you will be "out and about" this summer hiking woodland trails or gardening in your backyard. Some of you may accidentally come into contact with the leaves, roots, or stems of two plants commonly known as poison-ivy and poison oak. If exposed to these plants, it's possible that shortly afterwards you will develop an itchy red rash. If you are one of those unlucky individuals, you are one of the 85% that are allergic to a genus of woody trees, shrubs, and vines called *Toxicodendron*. This plant genus includes: poison-ivy, poison-oak, and poison sumac. All of these plants produce a chemical called urushiol that can cause severe dermatitis when it comes into contact with skin. Those of you that don't develop a nasty rash after exposure shouldn't be too boastful about your so-called immunity. Allergic reactions to *Toxicodendron* spp. may emerge with repeated exposure over time. However, the good news is that sensitivity to these plants decreases with age.

So, what's the difference between Poison-ivy and Poison-oak?

Poison-ivy (*Toxicodendron radicans*) is not a true ivy; it is actually a native, woody vine generally found growing in wooded areas across the southeast. It can grow as a shrub, groundcover or climbing vine, and often produces adventitious roots along its stems that allow it to anchor and climb structures. Leaves of this plant are generally composed of three rounded shaped leaflets. These leaflets are smooth and have few or no teeth along their edges and turn dark red in the fall. Small, round, grayish-white berries are also produced by this vine during the late summer and are a favored winter food for some birds.

Poison-oak (*Toxicodendron pubescens*) is a native, erect shrub that is commonly found growing in forests, thickets, and dry, sandy fields across the southeast. The leaves of this plant are composed of three leaflets that generally have a white leaf shape. Leaves turn yellow or orange in the fall. Small, round, yellow or green fruit are produced in late summer and are also a favored winter food for some birds.



From the photos you can see that poison-ivy and poison-oak look very similar and it may be difficult to tell the difference between them when out in the field. For this reason, the most important thing to remember when you come across a questionable plant is: "if it has leaflets of three, leave them be".

Controlling Poison Ivy & Poison Oak

Glyphosate herbicide control is most effective throughout May to July when plants are flowering. Herbicide should be sprayed according to label directions. Burning plants is not recommended because plant oils will vaporize during burning. These oils can be transported by wind and eventually end up on the skin, thus resulting in an allergic reaction. For climbing poison ivy, cut vine off 6 inches above the ground. The vine stump should be immediately treated after cutting. Plants can be very persistent and may have to be chemically treated two or more times to completely control.

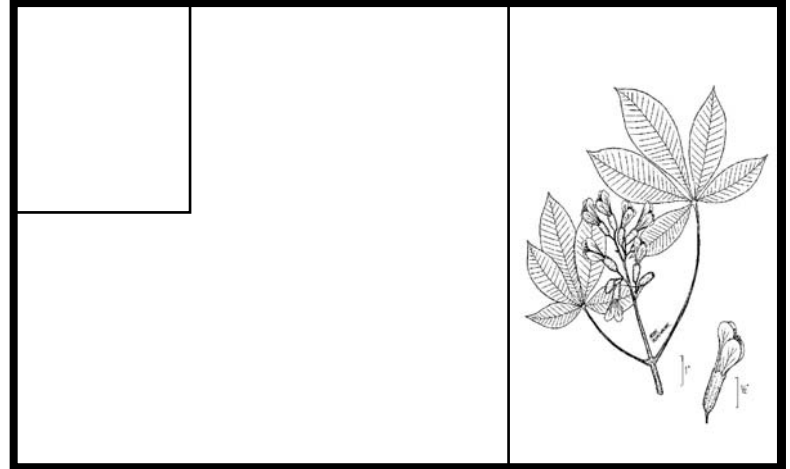
Native Plant Spotlight

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Red Buckeye *Aesculus pavia*



Red buckeye is a handsome, understory native that heralds spring along the well-drained slopes of streams and rivers throughout the southern United States. This deciduous shrub can grow to 15-20 feet in height and has a growth rate of slow to moderate. Growth habit is that of a broad mounding shrub and leaves are palmately compound with 5 leaflets. Red buckeyes are often the first to lose their leaves late summer. Spikes of showy red flowers appear from March to April and are a near source for ruby-throated hummingbirds and various species of butterflies.

The fruit ripens in late summer; leathery husk opening to reveal two dry, hard seeds with a lustrous dark brown color. With the possible exception of squirrels, wildlife avoid the bitter, poisonous seeds. The toxicity of the fruit should be considered if red buckeye is used in landscape situations where children may be present.

Carrying a buckeye seed in the pocket as a good luck charm is an old custom. It was once said, "You'll never find a dead man with a buckeye in his pocket." Supposedly, the seeds were also carried as a folk remedy to ward off rheumatism, hemorrhoids and other assorted ailments.

Propagation is easiest from fresh seed placed in the fall. Plants will usually flower about 3 years from seed.

MSPMC Active Releases

- 'Halifax' Maidencane
- 'Chiwapa' Japanese Millet
- 'Highlander' Eastern Gamagrass
- Hopefield Selection Trailing Wildbean
- Indian Bayou Source Powdery Thalia
- Lark Selection Partridge Pea
- Leaf River Source Wool Grass
- Leflore Source Creeping Burhead
- 'Meechee' Arrowleaf Clover
- 'Quail Haven' Reseeding Soybean
- Morton Germplasm Shrub Willow

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