

# Jamie L. Whitten Plant Materials Center

USDA-Natural Resources Conservation Service

## Plant Materials Center Overview

The Jamie L. Whitten Plant Materials Center (PMC), located in Coffeeville, Mississippi, is operated by the USDA Natural Resources Conservation Service. We develop and transfer plant materials and plant technology for the conservation of natural resources. Emphasis is focused on using native plants as a healthy way to solve conservation problems and protect ecosystems.

The PMC service area (map, page 4) is based on major land resource areas in Mississippi, eastern Arkansas and Louisiana, southeastern Missouri, western Tennessee, and the black land prairie of Alabama.

In working with a broad range of plant species, including grasses, forbs, trees, and shrubs, the PMC seeks to address priority needs of field offices and land managers in both public and private sectors through our long range program objectives. Objectives for the PMC service area include: Pastureland Improvement, Cropland Erosion Control, Wildlife Habitat Enhancement, Water Quality Improvement, and Critical Area Erosion Control.

We have developed a variety of technology transfer material on various aspects of plant materials and their uses. These include newsletters, technical reports, plant brochures, and planting guides.

The PMC has also evaluated, selected and cooperatively released 11 plant materials for conservation use. Planting stock of these releases are provided to seed and plant producers for commercial increase and distribution.

We work cooperatively with the MS Agricultural and Forestry Experiment Station (MAFES), MS Soil and Water Conservation Commission, USDA Forest Service, USDA Agriculture Research Service, MS Department of Transportation, Alcorn State University, and Mississippi State University.

The PMC is located half-way between Jackson, MS and Memphis, TN just off I-55. To visit the Center, take the Tillatoba Exit (220) and travel 4.5 miles east on Hwy 330. The hours of operation for the PMC are 8:00 am to 4:30 pm. Group tours are welcome.

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Visit Our Web Site at  
[plant-materials.nrcs.usda.gov](http://plant-materials.nrcs.usda.gov)

### PMC STAFF

Joel Douglas – Manager  
Janet Grabowski – Biologist  
Scott Edwards – Agronomist  
Bill Benoist – Biological Technician  
Jeff Tillman – Biological Technician  
Patricia Taylor – Secretary  
James Pomerlee – Gardener

# Summary of Active Studies

## Pastureland Improvement

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### Concerns

Introduced warm season grasses (bermudagrass and bahiagrass) offer quality forage but require high inputs for long term sustainable production.

Cool season grasses such as tall fescue do not perform well over much of the service area and many other cool season grasses must be established annually and require higher levels of fertility than many farmers can provide during economic downturns.

### Objectives:

- Establish from seed and persist under a wide variety of soil conditions.
- Produce a high quality forage and withstand heavy grazing.
- Are compatible with clovers or other legumes.
- Cool season grasses that will complement warm season grasses.
- That are not invasive.
- Require little maintenance and can survive on soil with low fertility.

### Active Studies

**Evaluation of switchgrass for improved forage type.** Scott Edwards  
Purpose: Compare commercially available switchgrass (Alamo) to selections made from an initial evaluation of locally collected switchgrass types.

**Eastern gamagrass seed treatments.** Janet Grabowski  
Purpose: Evaluate treatments for enhancing germination of eastern gamagrass seed.

**Seed production management of switchgrass.** Joel Douglas  
Purpose: Compare seed quality of clipped and unclipped switchgrass.

**Seedling emergence of eastern gamagrass as affected by depth.** Joel Douglas  
Purpose: Compare seeding depths of 1/2 to 3 inches on seed germination of 9062680, PMK-24, and 'Jackson' eastern gamagrass.

**Pest control methods for eastern gamagrass.** Janet Grabowski  
Purpose: Evaluate treatments to control disease and insect problems associated with eastern gamagrass plantings at the PMC.

**Switchgrass establishment methods.** Scott Edwards  
Purpose: Compare spring and fall planting of switchgrass on conventional and no till seedbeds into existing bermudagrass.

**Germination of eastern gamagrass as affected by fruitcase and seed treatment.** Joel Douglas  
Purpose: Compare seed germination of eastern gamagrass when the fruitcase is removed and the affect of stratification on fruitcase manipulation.

**Evaluation of switchgrass for bio-mass.** Scott Edwards  
Purpose: Evaluate promising switchgrass selections from other agencies across the country for their adaptability and bio-mass production.

## Cropland Erosion

### Concerns

There is a need for plants and cultural specifications for vegetative barriers, field borders, filter strips, and winter cover from legumes that are compatible with conventional or conservation tillage.

#### Objectives:

- Provide fall, winter, and early spring growth and weed control.
- Supply a portion of the nitrogen required for the field crop.
- Suitable stem properties for filtering efficiency.
- Not invasive.

### Active Studies

#### **Management systems for reseeding arrowleaf clover.** Scott Edwards

Purpose: To determine the influence of soil disturbance in a no-till grain sorghum production system on the reseeding of arrowleaf clover.

#### **Low growing switchgrasses for vegetative barriers.** Joel Douglas

Purpose: Compare the effect of a managed and unmanaged Alamo switchgrass barriers to low growing switchgrass ecotypes on soybean yield in rows near the barrier.

#### **Vegetative barrier demonstrations.** Joel Douglas

Purpose: Demonstrate the effectiveness of vegetative barriers for cropland erosion and collect sediment deposition, evaluate performance of plants, and collect crop yield data.

## Critical Area Erosion Control

### Concerns

Vegetation for roadways, woodland, stream banks and other drastically disturbed sites. This includes areas altered by construction, mining, timber harvesting, and roadsides.

#### Objectives:

- Survive in areas prone to low fertility, drought or are too rough or steep for equipment.
- Woody plants that root from cuttings and withstand high velocity flows.
- Can tolerate close mowing.

### Active Studies

#### **Herbicide tolerance of selected native plants.** Janet Grabowski

Purpose: Determine the effect of herbicides on native grasses, legumes, and wildflowers. This is the second phase testing postemergence herbicides.

#### **Mowing and burning treatments on native plants.** Janet Grabowski

Purpose: To evaluate three mowing regimes and a burning treatment on stands of wildflowers and native grasses.

#### **Evaluation of purple coneflower sources.** Janet Grabowski

Purpose: To compare accessions of purple coneflower from commercial sources to a locally collected accession.

## Wildlife Habitat Enhancement

### Concerns

Plants for wildlife food and cover are needed in all land use areas.

#### Objectives:

- Herbaceous or woody.
- Can be easily established.
- Compete with weedy species and will not become invasive.
- Have a growth form enabling it to resist erosion.

### Active Studies

#### **Herbicide tolerance of wildlife legumes.** Joel Douglas and Bill Benoist

Purpose: Evaluate various pre and post emergent herbicides on plant performance of reseeding soybeans, partridge peas and wildbeans.

#### **Reduced seeding rates for native grasses for wildlife.** Scott Edwards

Purpose: Evaluate the effects of Plateau herbicide and nitrogen application on 2 seeding rates (10 and 5 lbs/A) for 'Alamo' switchgrass establishment.

# Water Quality Improvement

## Concerns

Develop plant technology for wetland creation, restoration and enhancement.

A method is also needed to dispose of the waste generated from confined animal operations that will not require large acreage or be prohibitively expensive.

### Objectives:

- Withstand high nutrient loads.
- May break down organic wastes themselves and assimilate them into usable products.
- Remove large amount of nitrogen and phosphorus.
- Large biomass production.

## Active Studies

**Wetland reserve program demonstration planting.** Janet Grabowski

Purpose: To evaluate techniques for establishing herbaceous wetland plants on a wetland reserve program planting site.

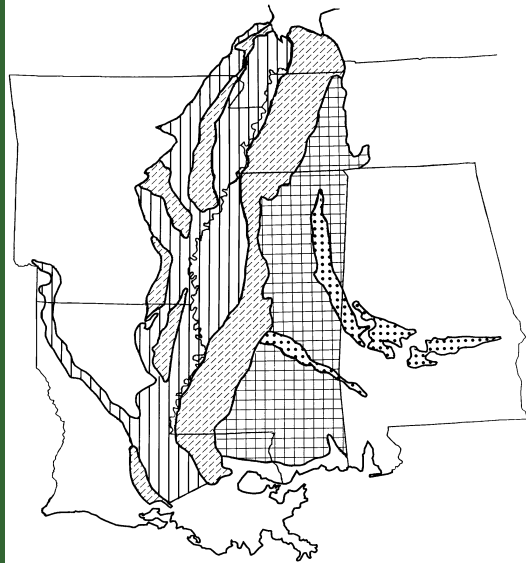
**P utilization and plant performance with limited N.** Scott Edwards

Purpose: To measure P uptake and plant performance of bermudagrass and bahiagrass compared to switchgrass and eastern gamagrass when used in a waste utilization plan for poultry litter.

**Directory of Wetland Plant Vendors.** Janet Grabowski

Purpose: The directory will contain over 4,000 wetland species and over 300 wetland plant vendors.

## PMC Service Area



- 131 Southern MS Valley Alluvium
- 133A Southern Coastal Plain
- 134 Southern MS Valley Silty Uplands
- 135 AL, MS, AR Blackland Prairie



Looking for Information on Vegetative Solutions to Conservation Problems?

Visit the Plant Materials Program Website!

[plant-materials.nrcs.usda.gov](http://plant-materials.nrcs.usda.gov)

Look for the following on our site:

- Plant Fact Sheets on conservation plants.
- Info. on how to obtain conservation plants.
- Publications and technology development from 26 PMC's across the country.
- New improved plants uses and technology.
- Links to websites with additional or supporting information.



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