



Mid-South Plant News

A Newsletter from the Jamie L. Whitten Plant Materials Center

The Bobwhite Quail Problem

In a recent edition of the *Journal of Soil and Water Conservation*, Donald F. McKenzie of the Wildlife Management Institute in Ward, Arkansas wrote a guest editorial entitled "Saving Old Bob!" (volume 57, number 3, pg. 60A-61A) that decried the decline in Bobwhite Quail populations. He attributed the decline to a loss of habitat and stated that "Nesting and brood-rearing cover is made of diverse, properly managed stands of native, warm-season clump grasses interspersed with legumes, forbs and wildflowers." We wanted to let you know how we are addressing this concern at the Jamie L. Whitten Plant Materials Center (PMC).

Researchers at the PMC and Mississippi State University have joined together to accelerate development of warm-season grass cultivars for the Southeast. Species being studied are beaked panicum (*Panicum anceps*), purpletop (*Tridens flavus*), big bluestem (*Andropogon gerardii*), switchgrass (*Panicum virgatum*), indiagrass (*Sorghastrum nutans*) (right) and little bluestem (*Schizachyrium scoparium*). Our strategy is to select early germinating ecotypes that can compete with weeds for better field emergence and subsequent stands. Selections are being made now and we anticipate cultivars in the future.

In addressing the forb side of the equation, we are producing wildflower seed that is available through the local Soil and Water Conservation Districts and are hoping in the future to develop new sources of native legumes.



Indiagrass produces several gold colored seedheads in late summer or early fall.

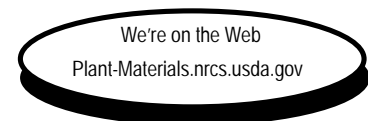
Scott Deserts Magnolia for Cajun Country

Scott Edwards left his position as Agronomist at the PMC to become the Plant Materials Specialist in Louisiana in July. He wanted us to think that he took the position for the promotion, but we all know that what he really wanted was a larger selection of golf courses and to be closer to Texas Stadium so it would be a shorter trip to watch the Dallas Cowboys play football. We wish him well in his new position and we know he is still a part of the family - after all, Louisiana is in our service area. Scott, watch out for Tigers and 'gators.

Jeff Tillman also left the PMC for a position as Soil Conservation Technician at the Field Office in Yalobusha County this May. We also wish him well and, since he is still located in our home county, we will be working regularly with him in the future as well.

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Conservation Buffer Practices at the PMC

The PMC was a training site for a NRCS conservation buffer training course that was held in Grenada, Mississippi August 13-15, 2002. The following is adapted from materials given to the participants.

Vegetative Barrier (601) The PMC began a study in 1992 to compare warm and cool season herbaceous plant materials for use in vegetative barriers. Plant species used in the study were arundo (*Arundo donax*), eastern gamagrass (*Tripsacum dactyloides*), dwarf switchcane (*Arundinaria gigantea*), vetivergrass (*Vetiveria zizanioides*), blackberry (*Rubus argutus*), pampasgrass (*Cortaderia selloana*), indiagrass (*Sorghastrum nutans* cv. Lometa), tall fescue (*Lolium arundinaceum* cv. KY31), switchgrass (*Panicum virgatum* cv. Alamo), and miscanthus (*Miscanthus sinensis*). Plant materials were established in 30 ft. by 5 ft. plots on a Loring silt loam soil with a 7 % slope. Three contour lines, 300 ft. long, were arranged across the field, parallel to one another. Spacing between contour lines was 63 ft. Erosion was accelerated between the barrier strips by disking often during the 3-year study duration. Plant materials were evaluated for percent stand, stems/ft., stem diameter, height and canopy spread (see table on following page). Sediment accumulation and loss was monitored on the upslope and downslope side of each barrier strip using differential surveys that were made annually. Of the ten species tested, switchgrass, switchcane, and miscanthus showed promise for further consideration as vegetative barrier plant materials when managed correctly.



Vegetative barriers established on a 7 percent slope at the Jamie L. Whitten PMC.

This study revealed the effectiveness of installing vegetative barriers on sloping topography to significantly reduce slope length and soil loss. In seven years, the annual soil loss on this field has been reduced by 40 percent according to RUSLE. Future research with the Agriculture Research Service in Oxford, Mississippi will evaluate various soil treatments for improving fertility on the downslope side of the barrier.



Alley cropping study with a pecan tree row in a soybean field at the Jamie L. Whitten PMC.

Alley Cropping (311) The PMC is cooperating with the National Agroforestry Center on an alley cropping study. The study is located at the PMC near Coffeerville, Mississippi on a four acre hillside of a Loring silt loam soil (6 to 8 % slope) that was previously in permanent sod. Paired rows of tree species planted were pecan (*Carya illinoensis* cv. Choctaw) and green ash (*Fraxinus pennsylvanica*). The trees were planted in January 2002 in single rows along the general contour of the field and perpendicular to the dominant slope using the CORE4 Conservation Practice recommendations. Pecan trees were planted on 40 and 80 ft. centers, and the green ash was planted on 8 ft. centers. Roundup-ready soybeans (*Glycine max*, cv. Asgrow 4902) were no-till drilled between the tree rows in mid April. Fertilizer amendments for soybean production are being applied according to soil test recommendations. Soybean production, tree growth measurements and performance, as well as information on soil physical and chemical properties will be recorded long term. Information collected from this study will be used to supplement existing data on alley cropping in the PMC service area or used for revising the conservation practice standard.

Percent stand, stem density, stem diameter, plant height and canopy spread of various vegetative barrier species, Coffeeville, Mississippi.

Species	Std ¹	St. den ²	St. dia. ³	Plt. ht. ⁴	Can. ⁵
	--%--	--stem/ft ² --	--in.--	--ft.--	--ft.--
Arundo (<i>Arundo donax</i>)	88	5	.55	11	16
Eastern gamagrass (<i>Tripsacum dactyloides</i>)	78	8	.38	3	9
Dwarf switchcane (<i>Arundinaria gigantea</i>)	95	16	.22	4	8
Black berries (<i>Rubus argutus</i>)	95	6	.33	6	8
Pampagrass (<i>Cortaderia selloana</i>)	76	6	.35	6	8
'Alamo' Switchgrass (<i>Panicum virgatum</i>)	94	27	.23	6	12
Miscanthus (<i>Miscanthus sinensis</i>)	90	42	.28	6	10

Std – percent stand; St. den – stem density; St. dia. – stem diameter; Plt. ht. – plant height; Can. – Canopy spread

Reseeding Methods of Meechee Arrowleaf Clover

The following information is adapted from a Plant Note written by Scott Edwards. To view the entire publication, refer to the USDA-NRCS Mississippi Home Page at <http://www.ms.nrcs.usda.gov>.

'Meechee' arrowleaf clover (*Trifolium vesiculosum*) is a cool season, reseeding annual legume released by the PMC in 1966. Meechee is a multiple purpose legume that can be used for grazing, hay production, wildlife food, soil improvement and winter cover crop. Seed germinate in the fall, but grow slowly during the early winter. A majority of the growth is between February and May. Forage quality is high with digestibility generally superior to crimson clover at all stages of maturity. Deer and turkey readily feed on arrowleaf clover.

Meechee is established by seed from September to mid October. Seed can be drilled at 10 lb/acre or broadcast at 15 lb/acre with proper inoculant.

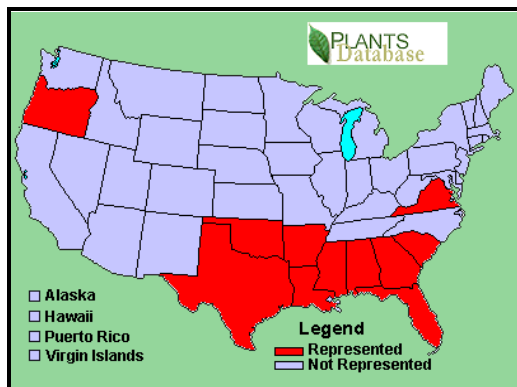
Meechee is capable of large seed yields ranging from 200 to 300 lb/acre, with approximately 75% hard seed. This hardseededness allows arrowleaf clover to maintain long term stands.

A study was conducted at the PMC, beginning in 1995, to determine the influence of soil disturbance on the reseeding of Meechee arrowleaf clover and to determine its effectiveness as a cover crop.

When Meechee was allowed to grow without interference from grain sorghum, percent canopy cover remained high averaging 97%. However, in a cropping system with no soil disturbance (shred stalks only), Meechee began to show signs of decline in 1998. In 1999, canopy cover had been reduced to 51%.

We found that clover stands with minimum soil disturbance had higher percent canopy cover than plots without soil disturbance. Hipped rows were found to decrease canopy cover due to relocation of viable seed from the furrow to the formed bed. Soil disturbance will also assist the natural reseeding of Meechee when used as a conservation cover or in a wildlife planting.

One disadvantage of using Meechee arrowleaf clover as a cover crop is that it will not mature seed until July or August, which is after the recommended planting date of conventional row crops. A possible solution to this problem is to use it on set-aside or fallow cropland the year before returning it to production or fall vegetable crops could be grown.



Meechee arrowleaf clover is adapted across much of the southeastern U.S.



Meechee in flower

USDA – NATURAL RESOURCES
CONSERVATION SERVICE

Jamie L. Whitten Plant Materials Center
2533 County Road 65 Coffeeville, MS 38922
Phone: 662-675-2588 Fax 662-675-2588

PMC Staff

Joel Douglas – Manager
Janet Grabowski – Agronomist
Patricia Taylor – Secretary
James Pomerlee – Gardener
Ann Vance – Biol. Science Aid
Terry Turner – Gardener
Ross Burney – Gardener

Look for the new edition
of the Seed and Plant
Vendors of Conservation
Plants publication soon



Ask the Expert

- Q. Is it possible to drill native warm season grasses in the spring into stands of wildflowers that were planted the previous year?**
- A.** Yes, it is possible to drill native warm-season grasses in the spring without extensively damaging wildflowers that were planted during the recommended planting season of late summer to fall of the previous year. However, native wildflower and grass species are highly adaptable. You can get acceptable stand of both types of seed by planting in either the spring or the fall, so they can be planting together, thus saving one planting operation. Just be aware that spring-sown wildflowers will not produce as many flowers as they normally would during the first year.

PMC Highlights

- April 3 Provide tour of PMC facilities for local farmers, ranchers, partners and representatives of the Mississippi congressional delegation*
- April 16 and 30 Joel Douglas provided plant materials training to new NRCS employees across the southeastern states at the Delta Conservation Demonstration Center in Greenville, Mississippi*
- May 14 Host Conservation Carnival for 250 children from Yalobusha and Tallahatchie county schools*
- June 12 PMC Field Day with >200 people attending tours of wildflower production fields and presentations by Mississippi State University and Extension Service personnel*
- June 18 Joel Douglas provided plant materials training for Soil Conservationists in Leflore and Calhoun counties at the PMC*
- August 14 40 participants at the Conservation Buffer training course, held in Grenada, Mississippi, visited the PMC to observe examples of Vegetative Barriers and Alley Cropping Prac-*

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