



United States Department of Agriculture

## Booneville Plant Materials Center 2015 Annual Report of Activities



Cover crop demonstration November 2015.

### 2015 Booneville PMC Current Study Summaries and Highlighted Activities

The Booneville Plant Materials Center (BPMC) uses training courses, written publications, and demonstration plantings to further the effective planning of vegetative conservation practices. The following activities describe BPMC activities in 2015.

#### Training provided to Field Office staff and Extension Agents



Cattle grazing big bluestem and indiagrass near Batesville, AR

Training in establishment, management, and grazing of native warm season grasses, was provided to 33 NRCS, area and Field Office employees, and County Extension Agents at the University of Arkansas Batesville Experiment station in July 2015. The Plant Materials Center joined the University of Arkansas, University of Tennessee, and the Arkansas NRCS Grazing Lands Specialist to conduct a two day training for Extension, and NRCS personnel. The training provided conservationists information about establishment, establishment costs, management plans for grazing livestock, and stocking rates that may be expected if a successful management plan is followed.

## Technical Note

A technical note, "How to Calculate the Bulk Seed Planting Rate of Native Warm Season Grasses Planted on a PLS Basis", was developed to guide conservationists, landowners and others on how to calculate the bulk seed planting rate when the desired grasses are planted on a PLS pounds per acre basis using information from the seed label or tag. The note features information about calculating individual species and mixes, a bulk pounds/acre reference chart, and examples of calculating various seeding rates.

## Cover crop demonstration planting



Cover crop demonstration.

As part of a national PM effort to learn more about the adaptation of different cover crop species, BPMC established a demonstration planting of cover crop materials in September 2015. The planting includes 15 varieties of rye, 8 varieties of winter pea, a single variety of hairy vetch, and 2 varieties of balansa clover. Data collection includes; germination date, spring green up, bloom and flowering dates, plant height, and disease and insect resistance. The planting will be used as part of the BPMC Field Office training effort.

## Shortleaf Pine and Switchgrass Agroforestry

Shortleaf pine trees, planted in January 2006, without switchgrass growing in the alley ways have shown increased growth rates of 6% in both tree height and tree diameter, when compared to trees grown with switchgrass in the alley ways. In addition, trees grown with switchgrass had a pruning effect on lower limbs, but natural pruning had little effect on tree growth. Results from 2010-2015 suggest that reduced growth rates of trees grown with switchgrass in alley ways is due primarily to competition for available soil moisture.



Agroforestry evaluation.

## Conservation Reserve Program (CRP) CP42 Pollinator Habitat



Flowering species attract bees and other insects.

growing seasons under current management practices.

Three commercial pollinator mixes met the CRP CP42 pollinator habitat conservation practice standard in 2013 in Arkansas. All three mixes contained plant species that bloomed in the spring, summer, and early fall. Two of the mixes had over 6 species blooming throughout the three seasons. Some plots are being invaded by bermudagrass and/or woody species. Mid-contract management, which consisted of burning and light disking, were performed on selected plots in 2014, but had minimal effect on the current weed population. Evaluations in 2015 suggest only 2 of the flowering species have survived, making the practice sustainable for only 2-3

## Bottomland Hardwood Restoration Study using Wetland Reserve Program (WRP) Specifications



PMC Technicians Ed Pratt, and Dale Goff planting hardwood trees.

Differing spatial arrangements and different hardwood tree species are being evaluated at the BPMC. George Rheinhardt, Arkansas state forester, and a team of NRCS staff members planted over 2,800 native hardwood trees in the winter of 2012. Overall survival was excellent and stand data will be evaluated in 2017. The survival was 94% in the spring of 2014, and approximately 80% in the spring of 2015.

## New Indiangrass Germplasm Development

Indiangrass (*Sorghastrum nutans*) accessions were collected in western Arkansas and eastern Oklahoma in the fall of 2006. The assembly of 45 accessions from the southern Ozarks was made to identify plants with superior drought tolerance. Nine of these accessions were selected and planted in a polycross nursery. These plants flowered later than usual due to dry summer conditions. Seed was collected in the fall of 2013 and an initial seed increase field was established in 2014. Forty pounds of foundation seed was harvested from the initial seed increase field in 2015. A germplasm release is planned for 2017.

## Switchgrass Soil Fertility and Production

Nutrient requirements for many forage crops, such as bermudagrass and tall fescue, are well established in Arkansas. Soil testing recommendations from the University of Arkansas soil testing lab currently use the same recommendations for all native warm season grasses. Soil fertility recommendations need to be customized for producers interested in growing switchgrass. The BPMC has



Harvesting Alamo switchgrass July 2015.

partnered with Dr. Philip Moore and Dr. Dan Pote from USDA-Agricultural Research Service (ARS) and the NRCS Central National Technology Support Center to evaluate the response of 'Alamo' switchgrass to varying rates of N, P, and K. The study was established in the spring of 2013 and the first dry matter measurements were taken in the spring of 2014. Yield, nutrient analyses, and forage quality estimate of crude protein and digestibility were collected in 2015. The study will continue in 2016. Results from the cooperative study will be used to improve current recommendations for production of 'Alamo' switchgrass in Arkansas and adjacent States where this cultivar is adapted and grown under similar soils and climate of western Arkansas.

**Who We Are**

The Booneville Plant Materials Center was established in 1987 in Booneville, Arkansas to help solve resource concerns in the southern Ozarks, Arkansas River Valley, and Boston and Ouachita Mountains. The service area is approximately 54 million acres and includes portions of Arkansas, Oklahoma, and Missouri. The Booneville PMC farm encompasses 291 acres and is co-located with the Agricultural Research Service's Dale Bumpers Small Research Farm. The center is one of 25 NRCS Plant Materials Centers in the nation. The Booneville Plant Materials Center on grazing land health with secondary emphasizes on critical areas, woodlands, and wildlife.

**What We Do** The mission of the Natural Resources Conservation Service Plant Materials Programs is to develop, test, and transfer effective plant science technology to meet customer and resource needs by cooperating with partners and other agencies, NRCS field office staff, landowners, and agricultural producers. NRCS PMC activities help accomplish the objectives of the current United States Department of Agriculture (USDA) and NRCS Strategic Plan in providing timely and effective vegetative solutions for identified resource needs

**PMC Staff**

Randy King, Manager  
Dale Goff, Biological Science Technician  
Eddie Pratt, Biological Science Technician

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