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U.S. Department of
Transportation



Project Title: **Breeding and Testing of New Switchgrass Cultivars for Increased Biomass Production in Oklahoma, Arkansas, Texas, and Kansas**

DR. YANQI WU

Project Goal

The objectives of the project were to: (1) expand and improve an existing switchgrass working germplasm collection via further collection, evaluation, and genetic enhancement; (2) continue the long-term recurrent selection for general combining ability and breeding within upland and lowland ecotypic populations to effect incremental improvement in targeted traits; (3) develop switchgrass cultivars with increased biomass yield over major commercial cultivars for the south-central United States; and (4) establish a switchgrass cultivar testing network across a precipitation gradient from eastern Arkansas to western Oklahoma and across a temperature gradient from central Texas to northern Kansas.

Project Outcomes

- A new switchgrass cultivar, 'Cimarron' developed at the OSU breeding program, was released by Oklahoma Agricultural Experiment Station in 2008.
- Multi-test results indicated 'Cimarron' produced about 10% more biomass than the best commercial variety 'Alamo' and 25% more than 'Kanlow'.
- The new cultivar has been licensed to Johnston Seed Company at Enid, OK, for seed production and commercialization.
- Four switchgrass breeding populations of lowland and upland germplasm were advanced one cycle each.
- Nineteen new synthetic experimental cultivars were developed, which along with standard cultivars were included in a regional testing network across OK, AR, TX, and KS. The regional trials were established in 2010 and will be continued in three additional years testing biomass yield and persistence. Our molecular marker analysis indicated substantial genetic variation existed in the current switchgrass collections.

Other Sources of Funding

Oklahoma State University covered the salary of PI as cost share. University of Arkansas, Kansas State University and Texas Agricultural Experiment Station covered the salaries and fringe benefits of Co-PIs from their respective institutions.



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