

Team tackles bioconversion efficiency


Donghai Wang, professor of biological and agricultural engineering, heads a sorghum bioconversion research team at Kansas State University that has tackled the goal of enhancing the economic attractiveness of producing biofuels and biobased products from sorghum, as well as improving the bioconversion efficiency of sorghum to those products.

Wang has received more than \$1.7 million in funding as principal investigator (PI) and \$1.8 million as co-PI from the Kansas State Grain Sorghum Commission, United Sorghum Checkoff Program, USDA, DOT, DOE, NSF and industry. His team consists of two K-State agronomists, one Iowa State and two Texas A&M faculty members, three USDA researchers and two industry representatives.

“We are the first research group to realize that sorghum biomass contains a significant amount of free sugars,” Wang said. “We developed integrated biomass pretreatment and fermentation systems to fully use both structural polysaccharides and nonstructural carbohydrates as fermentable sugars for ethanol and chemical production.”

Results from the project have made significant improvements in the efficiency of sorghum bioconversion and sorghum conversion yield on industrial products, increased scientific information to assist sorghum breeders in the development of new and improved existing sorghum lines, and helped to release new sorghum lines for the biofuel industry.

“These efforts have positively impacted economic rural development in Kansas as well as across many sorghum-growing states,” Wang said.



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Finding the sweet spot



“This innovative technology — enabling ethanol production from sweet sorghum juice — has the potential to improve ethanol yield, save energy and significantly decrease water use in the current ethanol process.”

— *Donghai Wang,*
K-State professor