



Science
Societies

New Sorghum Genetic Diversity in an Adapted Background

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Grain sorghum hybrids in a yield trial near LaFeria, TX in summer 2021. Photo by Daniel Crozier, Texas A&M University.

The genetic improvement of sorghum depends on the availability of genetic diversity in a genetic background adapted to the target production environment. Because most exotic sorghum (*Sorghum bicolor* [L.] Moench) diversity is photoperiod sensitive, it is not directly useful in North American sorghum improvement programs.

A collaboration between Texas A&M AgriLife Research and USDA-ARS developed 30 sorghum backcross-derived nested association mapping (BC-NAM) populations to be genetic and breeding resources. Using two recurrent parents, the team produced the populations from 27 distinct unadapted sorghum lines identified by sorghum breeders as valuable for unique traits and characteristics. In the first backcrossed generation, they selected for early maturity, plant height, and agronomic desirability in temperate environments. The researchers phenotypically characterized a subset of the lines they generated in seven environments for an array of traits and genotyped all lines using genome-based sequencing.

These populations are now available for both genetic research and breeding and selection and will increase the genetic diversity available to sorghum breeders.

Adapted from

Patil, N. Y., Hoffmann, L., Winans, N., Perumal, R., Hayes, C., Emendack, Y., ... & Rooney, W. L. (2024). Registration of sorghum backcross-nested association mapping (BC-NAM) families in a BTx623 or RTx436 background. *Journal of Plant Registrations*, 18, 204–219. <https://doi.org/10.1002/plr.2.20286>

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