Priority traits to optimize sorghum for organic production

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Sorghum is a hardy cereal crop with potential for organic production that could help meet the increased demand for organic food products and feed grains. However, no efforts have been made to determine the proper sorghum ideotype, or ideal plant characteristics, and underlying breeding strategy for this cropping system.

In an article recently published in *Crop Science*, scientists addressed these limitations by evaluating yield performance, agronomic traits, and biotic stress resistance under certified organic practices for 185 different grain sorghum entries, which included pure lines and hybrids, as well as 10 sweet sorghum cultivars and four commercial maize hybrids.

Data from multiple years and locations concluded that sorghum can be effectively produced organically with reduced inputs, but hybrid or cultivar selection is extremely important for success, with grain yield for different entries ranging from near zero up to almost 6,000 kg ha^{-1}.

Top sorghum entries yielded similar to maize hybrids and were particularly competitive in a marginal, low-input production environment. Overall, hybrids outperformed inbred lines as heterosis, or hybrid vigor, positively impacted influential agronomic traits. Sugarcane aphid tolerance, increased canopy closure, and grain mold resistance were positively correlated with grain yield and should be considered target traits for breeding sorghum for organic use.

Dig deeper

Boyles, R.E., Ackerman, A.J., & Kresovich, S. (2022). Traits and underlying genetics important for low–input organic sorghum production. *Crop Science.*

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