Breeding under Conventional Conditions Can Be Effective for Organic Farming

Both seed number and seed weight are important to grain yield of sorghum, but seed number is often considered the most important yield component. Because sorghum is often grown under water-limiting conditions, the evaluation of water stress on seed number, seed mass, and corresponding grain yield is of fundamental importance.

A recent article in *Crop Science* compares the yields of two grain sorghum lines. One was an experimental mutant line with enhanced seed number (tri-seed) while the other was the parent inbred line with fewer but larger seeds.

Although the tri-seed line had significantly more seeds compared with the parent line, the increased seed number did not adequately compensate for the significantly smaller seed weight. Both lines exhibited similar panicle masses and harvest indices, but the tri-seed averaged 12% less yield. The yield advantage of the parent line was greater at the low irrigation level and was principally attributable to reduced seed number of the tri-seed line under water stress.

If further breeding efforts enhance the tri-seed line’s potential for increased seed mass and yield, expression of these characteristics under water stress is critical for adaptation to dryland and deficit irrigated production.

Adapted from Tolk, J.A., and R.C. Schwartz. 2016. Do more seeds per panicle improve grain sorghum yield? *Crop Sci.* 57. View the full article online at http://dx.doi.org/doi:10.2135/cropsci2016.04.0245

Society Science

Do More Seeds per Panicle Improve Grain Sorghum Yield?

Both seed number and seed weight are important to grain yield of sorghum, but seed number is often considered the most important yield component. Because sorghum is often grown under water-limiting conditions, the evaluation of water stress on seed number, seed mass, and corresponding grain yield is of fundamental importance.

A recent article in *Crop Science* compares the yields of two grain sorghum lines. One was an experimental mutant line with enhanced seed number (tri-seed) while the other was the parent inbred line with fewer but larger seeds.

Although the tri-seed line had significantly more seeds compared with the parent line, the increased seed number did not adequately compensate for the significantly smaller seed weight. Both lines exhibited similar panicle masses and harvest indices, but the tri-seed averaged 12% less yield. The yield advantage of the parent line was greater at the low irrigation level and was principally attributable to reduced seed number of the tri-seed line under water stress.

If further breeding efforts enhance the tri-seed line’s potential for increased seed mass and yield, expression of these characteristics under water stress is critical for adaptation to dryland and deficit irrigated production.

Adapted from Tolk, J.A., and R.C. Schwartz. 2016. Do more seeds per panicle improve grain sorghum yield? *Crop Sci.* 57. View the full article online at http://dx.doi.org/doi:10.2135/cropsci2016.04.0245

Representative heads from the tri-seed sorghum variety. Source: Judy Tolk.

Barley. Source: Wikimedia/Pam Brophy.


Adapted from Tolk, J.A., and R.C. Schwartz. 2016. Do more seeds per panicle improve grain sorghum yield? *Crop Sci.* 57. View the full article online at http://dx.doi.org/doi:10.2135/cropsci2016.04.0245