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Sorghum and pearl millet as water-saving alternative silage crops

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Bishwoyog Bhattarai, a graduate student in Dr. Sukhbir Singh's lab at Texas Tech University, measuring the canopy temperature using the infrared thermometer. Photo by Sukhbir Singh.

In the semi-arid Texas High Plains, growers and producers are concerned about the sustainability of beef and dairy industries, which rely heavily on irrigated corn for feed grain and silage. A main source of irrigation—the Ogallala Aquifer—is declining rapidly, which emphasizes the need for producers to find alternative, water-efficient forage crops for sustainable beef and dairy production in the region.

A new two-year study in *Crop Science* investigates the potential of forage sorghum and pearl millet as alternatives to corn for forage production, evaluating the physiological responses of multiple varieties of all three crops under various irrigation regimes, including dryland. Data were collected on leaf water potential, stomatal conductance, and canopy temperature, and the influence of these responses on biomass production and nutritive values was studied.

Sorghum showed better physiological responses and produced greater biomass under water-stress conditions compared with pearl millet and corn. Though the nutritive value of sorghum was lower than corn, sorghum could provide growers with an alternative to produce higher biomass with less water. As a management option, forage sorghum could be mixed with high-nutrition supplements to achieve desirable feed quality and increase profitability.

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Bhattarai, B., Singh, S., West, C.P., Ritchie, G.L., & Trostle, C.L. (2020). Effect of deficit irrigation on physiology and forage yield of forage sorghum, pearl millet, and corn. *Crop Science*, *60*. **https://doi.org/10.1002/csc2.20171**

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