



**To: House Committee on Water**

**Fr: Kansas Sorghum**

**RE: Written Water testimony specific to Water Quality and Quantity Issues**

Mr. Chairman and members of the committee:

Thank you for providing this chance to provide written testimony to the House Committee on Water related to **“Water Quality and Water Quality Issues.”**

Sorghum is a key water-sipping crop suited to this area for a number of reasons, including:

- Sorghum needs only six inches of water to produce the first bushel of grain ;
- Sorghum is uniquely adapted to the plains in key areas of water and productivity in Kansas ;
- The Kansas Legislature invests every year in a key water project (DropXL), which is developing a “limited transpiration trait” for sorghum in Kansas .

There are needs in expanding cooperation with NRCS-KS to make sure federal programs make sense in Kansas. We are happy with progress working with NRCS-KS to deliver more results on conservation crop rotation in the Plains.

A few years ago, the state made a smart, ongoing strategic decision to invest \$150,000 per year in sorghum through the State Water Plan. It is helping.

Thank You.

That investment is developing a sorghum with enhancement of water efficient yield:

- The DropXL sorghum trait has potential to increase overall sorghum yields by 4%. Long-term simulations of rainfed cropping in Colby, Garden City and Manhattan suggest that conserving early season water saves water supply for when the crop is in key yield-determinant stages.
- The DropXL project team has identified a sorghum that has reduced water demand of ~8% compared with commercial sorghums under hot, dry conditions.
- The findings for DropXL are advancing the development of a sorghum trait package that supports the introduction of this trait in a wide variety of farmer preferred sorghum hybrids.

Sorghum is an important crop from a sustainability standpoint.

Additionally, Team Sorghum is cooperating with national organizations like National Sorghum Producers, Pheasants Forever and Quail Forever to better adapt producer cooperation with NRCS and others to deliver conservation solutions to our farmers and—by extension—to all Kansans .

Kansas sorghum producers continue to seek new ways to partner with the state as well as with federal agencies to help move us forward on important conservation and sustainability priorities.

We stand ready to answer your questions and be a resource to the State going forward. Thank you for your interest and investment.

# Sorghum: Maximizing Water Efficiency

## Rain or Shine

Smaller leaf pores reduce sorghum's leaf water loss

Dormancy traits allow sorghum to tolerate stressful conditions

**6"** It only takes six inches of total water to produce the first bushel of grain sorghum

Sorghum has a long planting season and diverse hybrid portfolio, offering farmers a broad window to take advantage of moisture patterns

Waxy leaves hold in moisture during dry conditions

In normal conditions, sorghum produces approximately 8 bushels per acre for every inch of water



The DNA composition of sorghum attributes to beneficial qualities such as stay green, drought and heat tolerance



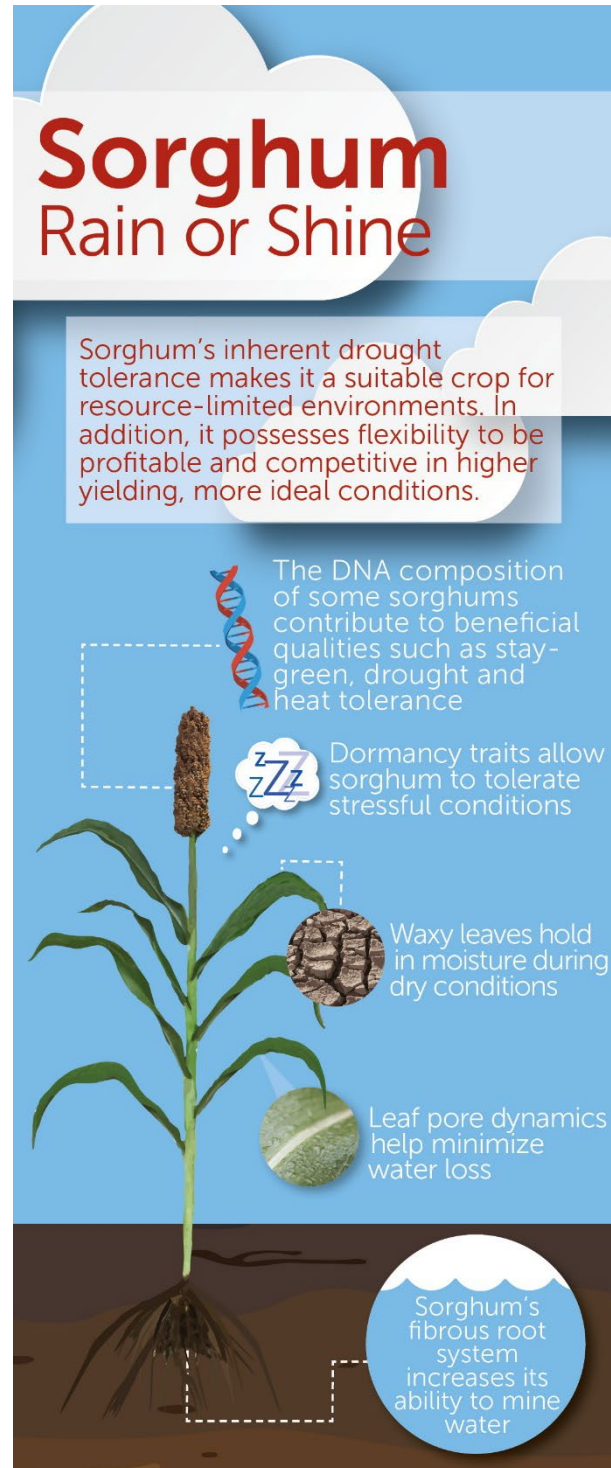
When incorporated into a cropping mix, sorghum stover will increase soil water holding capacity and reduce runoff

Sorghum's fibrous root system increases its ability to mine water

**SORGHUM: THE SMART CHOICE**

A diverse cropping system including sorghum, wheat, corn, soybeans, and other crops gives farmers opportunities to manage water efficiently within and across seasons. Kansas State's sorghum research capacity leveraged with farmer, industry and public investment can and is addressing existing sorghum technology gaps and aims to generate enhanced sorghums for Kansas cropping systems. Natural water-sipping attributes and untapped genetic potential are the basis for improved water-efficient sorghums with yield potential and stress resilience. Our sorghum research seeks valuable crop attributes making water efficient, water valuable. Here are a few ongoing research efforts moving the needle for water efficient cropping systems with sorghum;

- Exploring natural sources of herbicide tolerance in sorghum for new weed management technologies.
- Evaluating sorghum genetic diversity to revolutionize animal health technologies.
- Introducing and using cold tolerance for early planting resulting in greater utilization of the frost free growing season and water, and minimizes early drought stress.
- Balancing seed number and weight tradeoffs to sustain higher yield and protein across severe water limited environments.



Source: *Sorghum the Smart Choice*