

Alta Seeds: Brachytic BMR-6 Sorghums

MORE HIGH QUALITY FORAGE WITH LESS WATER THAN CORN

New generation sorghum produces high quality forage under hot, dry conditions with low cost

A comparison of a conventional sorghum stalks to a BMR-6 forage sorghum, which has much lower lignin content for higher digestibility.

Across the country, producers are discovering the next generation of sorghum hybrids can beat corn with high tonnage, digestibility, palatability and, most importantly, less water use and lower production costs.

Corn has been king in high-energy rations for generations, making it a staple for feedlots and cattlemen across the US. This year's widespread drought and ever-increasing restrictions on water use have made growing and buying corn a costly component in traditional rations. Beef producers considering more economical and drought tolerant options are finding new sorghum hybrids adaptable, versatile and highly-digestible with palatability cattle love.



Close-up view of the Brown Midrib in BMR-6 forage sorghum hybrids offered by Alta Seeds.



“Silage producers must face the challenge of growing adequate feed supplies with considerably less inputs than in the past,” says Mark Marsalis, an Extension agronomist at New Mexico State University. “The drought and heat tolerance of forage sorghum combined with the ability to resume growth after drought makes it an ideal candidate for silage systems in dry climates facing water supply concerns.”

His research has shown that forage sorghum can produce comparable or better yields than corn when irrigation water becomes limited or when growing conditions are less than ideal. Likewise, even in temperate areas of the country not known for annual water issues, other than the cyclical drought, forage sorghum is displacing corn as a silage crop.

Getting the Most Value Per Acre

Corn is losing ground to sorghum because cattlemen need to maximize the value each acre can produce, especially in dry years. Cattleman Kenny Yokely has been growing 300 acres of forages for his 120 cows and calves in Central Kentucky. During 2012, Kentucky was part of the widespread drought that left many producers searching for adequate corn silage. Yokely was prepared; he had planted brachytic dwarf and brown midrib (BMR) sorghum hybrids. He says the sorghum stopped growing during the long stretches without rain, but when the rain came, the sorghum started to grow again.

“We have been feeding forage sorghums for four years now,” says Yo-

kely of Auburn, Ky. “It has absolutely replaced corn in our operation, because it produces so much more than corn for a lot less money. We have to get the highest amount of feed and value per acre. Sorghum is the best option to accomplish that goal.”

As livestock owners across the country dealt with the devastating effects of the 2012 drought, cattleman who grew forage sorghum, such as Yokely, were able to insulate themselves from extensive feed shortages and skyrocketing forage prices.

Yokely says corn fields in his area produced 30-40 bushels per acre in 2012, while his AF 7101 BMR-6 forage sorghum from Alta Seeds produced 21 tons an acre. His AF 7401 BMR-6 brachytic dwarf hybrid yielded nearly 26 tons per acre. “We couldn't ask for anything more,” concludes Yokely. “The least producing sorghum field around here probably exceeded the yields of the best corn crops,” he says. “It pays to grow sorghum.”

The 2012 drought has underscored the need for productive forage crops with lower water requirements and production costs. Independent studies have shown forage sorghum with the brachytic dwarf and BMR-6 characteristics saves producers an average of more than \$200 per acre in total production costs compared to corn silage.

Production Cost Savings of Forage Sorghum vs. Corn Silage

Selected Production Costs for Irrigated & Dryland Forage Sorghum and Corn Silage				
State	Total Production Costs \$/Acre		Costs \$/Ton	
	Sorghum ¹	Corn ²	Sorghum	Corn
Texas High Plains (irr.)	424	569	17.66	27.04
California (irr.)	665	904	27.70	30.13
Pennsylvania	402	662	26.80	36.77
Average	497	712	24.05	31.31
Difference	\$ 215		\$ 7.26	

1 – Forage Sorghum, 2 – Trained Corn Hybrid – 34,000 seed/acre

2009 Texas AgriLife Extension Service, University of California Cooperative Extension, Penn State Cooperative Extension Service



Beef and Dairy nutritionist in Harrisburg, Virginia, Grant Stoltzfus suggests any operation with cows should consider forage sorghum as part of their ration.



Kenny Yokely is a cow-calf operator in Auburn, Kentucky, that completely replaced his corn silage with forage sorghum silage. He has been feeding forage sorghums for 4 years and his cows love it.



David Craun is a nutritionist in Franklin County, Virginia, with Renaissance Nutrition.

According to Marsalis, forage sorghum is often a viable alternative to corn silage, especially in areas where rainfall or irrigation is limited. In 2011, Marsalis released a paper stating the case for more cattlemen to consider planting forage sorghum. "Input costs can be considerably less with forage sorghum than corn," Marsalis says. "Silage growers can potentially save on fertilizer expenses when growing forage sorghum. Excellent yields -- up to 30 tons/acre with conventional types -- have been obtained with 200 lbs/ac or less of nitrogen, which is less than what is commonly put on corn for the same yield goal." Sorghum seed costs also are much less per acre than corn.

Sorghum's Water-Sipping Efficiency

One of the greatest advantages of sorghum over corn is the excellent heat and drought tolerance. Sorghum provides a summer rotation that has proven to be profitable in the harshest conditions. According to independent research data, irrigated forage sorghums will yield 1.75 to 2.5 tons of biomass per inch of irrigation water, while corn produces less than 1.0 ton per inch of water applied. With rising energy costs and water conservation concerns across the US, sorghum with its high water use efficiency offers a viable economic and sustainable alternative to corn.

Production and Water Use Efficiency of Irrigated Forage Sorghum and Corn for Silage

Type of Forage	Silage Yield (tons/acre)	Silage Production (tons/inch of irrigation water applied)
Photoperiod Sensitive Sorghum	33.0	2.51
Non-Brown Midrib Sorghum	25.6	1.94
Sorghum-sudangrass	24.5	1.79
Brown Midrib Sorghum	23.1	1.76
Corn	23.8	0.84



Source: Bean et al., Texas AgriLife Extension, 2001



Drought resilience lessens impact on health of cows

Sorghums tolerate significant moisture stress and will resume vegetative growth after drought-induced dormancy. Sorghums also have a very large and extensive root system capable of reaching soil profile depths of more than five feet. This large and efficient root system enables the sorghum plant to find water when other crops cannot.

The beef industry is concerned about the impact the drought will have on the health of the cows and subsequent calves. For Yokely, the impact will be minimal because he has high quality forages despite the drought.

With rising energy costs and water conservation concerns across the U.S., sorghum with its high water use efficiency offers a viable economic and sustainable alternative to corn. A study by the Texas AgriLife Extension Service indicated that if producers in the Texas Panhandle converted irrigated corn silage acreage to a sorghum-based system, the region could save more than 400,000 acre-inches of water annually. This would lower the cost of irrigation pumping by \$2.8 million. Likewise, a Regional Water Plan prepared for the Texas Panhandle Water Planning Group in Amarillo, Texas, found that the water savings over 50 years for 524,243 acres spread over 21 counties in the Texas Panhandle would amount to 7.36 million acre-feet of water if irrigated corn acreage were converted to irrigated sorghum. That's an average of 147,200 acre-feet saved per year—about 48 billion gallons (182 billion liters) per year.

"The calves build frame and condition well with sorghum, without getting fat," says Yokely. "We are selling the calves heavier than before we fed sorghum, and they look really healthy. The ones we've finished are well-marbled and taste as good as they ever did."

For Yokely, who also does some custom harvesting, he has seen more and more farmers looking into forage sorghums. Since they are adjusting to a new crop, the management aspect is a learning process. He says the value per acre, drought resistance and high digestibility make it a favorable crop for most any beef operation.

According to Texas AgriLife Extension Services, BMR-6 forage sorghums are 81.3% digestible and contain crude protein that is equal or higher than corn.

Quality Characteristics of Different Forages

Forage Type	Forage Quality Parameters				
	CP %	ADF %	NDF %	Lignin %	IVTD %
Conventional Forage Sorghum	8.3	29.9	49.1	4.4	75.5
BMR Forage Sorghum	9.2	27.6	45.9	3.6	81.3
Corn	9.0	23.9	41.2	3.5	82.7

Bean, et al., Texas AgriLife Extension Service, 2001

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Close-up view of the Brown Midrib in BMR-6 forage sorghum hybrids offered by Alta Seeds.

The Nutritionists' Take

Nutritionists Grant Stoltzfus and David Craun work for Renaissance Nutrition in Virginia. They consult with a number of beef and dairy cattle customers who have made the switch from corn silage to forage sorghum.

When a customer came to him two years ago with the idea of growing forage sorghums for his herd, Stoltzfus was excited about the opportunity to learn more about the crop and to test it. Stoltzfus says he was skeptical of how well forage sorghum would work at first, but now he is recommending it to his customers.

"I've been very satisfied with the performance and I would say definitely consider it," Stoltzfus says. "When looking at the nutritional analysis of BMR forage sorghum, it tends to run higher in protein, and starch levels are comparable to corn silage. I looked at the NDF (neutral detergent fiber) digestibility and it was very similar to good corn silage. The cow performance while feeding forage sorghum has been excellent."

Craun says, in his service area, obtaining quality corn silage is usually a challenge and he and his customers are seeing superior results with forage sorghum versus corn silage.

"I narrow down the forage sorghum to three primary advantages," Craun says. "You get an economical cost per ton, the performance matches up well with corn silage diets and consistency is very dependable. Year-in and year-out, we know what we're going to be dealing with when it comes to forage sorghum."

Craun's customers plant Alta Seeds brand forage sorghum and he recommends it to customers who are considering alternatives to corn silage. "Where we've planted the Alta Seeds forage sorghum, we've seen consistency as far as quality, but we've also seen good tonnage, even in drought stricken areas. That's the biggest advantage to forage sorghum - whether it's a dry year or a wet year, we're still seeing results," Craun says. "It's a winner all the way around for the cows, for the producer and for the nutritionist."

The Alta Seeds product line-up offers a range of forage sorghum options for farmers, ranchers and cattlemen seeking a lower-cost, high quality alternative to corn silage reports Lubbers. "Whether it's an irrigated or dryland farming operation, sorghum's adaptive nature, high production efficiency, and versatility make it a valuable tool and the best choice for cattlemen demanding a reliable crop that produces high quality feed."

For more information about forage sorghum, visit altaseeds.com to review the Sorghum for Forage field guide, or call 877-806-7333 and ask for this comprehensive guide to growing sorghum.

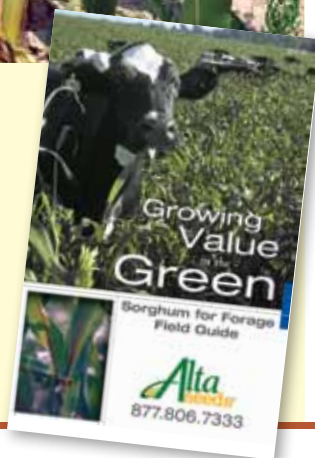
Brachytic Dwarf Sorghum Available from Alta Seeds

Brachytic dwarf is the latest genetic breakthrough in sorghum. This new sorghum has shorter internodes making the plant shorter overall while increasing standability. Brachytic dwarf sorghums produce similar tonnage to BMR forage sorghums because the desirable characteristics, such as leaf number, leaf size, maturity or yield/biomass production are not affected. The very high leaf to stalk ratios and prolific tillering allow these hybrids to provide high yielding quality forage. Alta Seeds brachytic dwarf hybrids are also brown mid-rib (BMR-6) for extremely palatable, highly digestible forage that rivals corn silage in animal performance.



The Alta Seeds Sorghum for Forage Field Guide

has 128 pages explaining sorghum types, forage quality, harvest versatility as well as management tips for agronomics, pests, irrigation and harvesting. For reference, visit altaseeds.com or call 877-806-7333 for your free copy to learn more about sorghums for forage from Alta Seeds.





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