



ADVANCED AG SYSTEMS'

Crop Soil News

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"It is the crops that feed the cows that make the milk which creates the money."

Advanced Ag Systems
Research, Education, Consulting

Why BMR Sorghum?

Corn is in, or not. The weather has been in a wild swing cycle that we have seen before. No, burning an agronomist at the stake will not help! With any shifting weather patterns, not putting all your eggs in one basket (or one crop) could give you a much more stable forage supply. One of those alternative crops is the often-ignored Brown Mid Rib forage sorghum or sorghum-Sudan. It is planted when the soil is warmer than 60F and the forecast is for warmer conditions. This occurs after most if not all haylage is harvested. Taking first cutting followed by sorghum is one way to increase the yield from a runout hayfield.

The first question is why sorghum over corn. When we start to list the reasons, farmers frequently switch to asking why corn over sorghum? Right out of the gate we save about \$100/acre on seed costs. Replicated trials, with good management, near the Canadian border in upper New York, have consistently given yields equal to or exceeding those of the corn variety trial planted next to it. Harvested properly and fed in a high forage NDF ration, milk production from BMR sorghum is equal to corn silage with only minor adjustments in the concentrate (slightly more cornmeal, significantly less soymeal). And then there are the bonus points: corn can follow sorghum with no rootworm issues as the sorghum kills the larvae and the adults look elsewhere to lay the eggs for the next generation; drilled sorghum in narrow rows protects the soil from erosion and raindrop impact a month or more earlier than corn; in moisture short conditions sorghum will yield 50 – 100% more than corn on the same water. Deer hide in sorghum and come out to eat the neighbors' corn. Finally, the rapidly growing issue – **sorghum** does **NOT GET CORN TAR SPOT**. It has its own type of tar spot different from corn, but sorghum agronomist had not seen it in the US. For those with fields devastated last year and concerned about the carryover on plant debris, sorghum can eliminate that worry.



This sorghum variety trial on the Canadian border consistently yields equal or greater than the corn silage trial next to it.

Shifting over to **NON-BMR sorghum**, more farms are discovering that it is the premier, economical forage for raising dairy replacements. Corn silage is problematic in that the starch contributes to fat deposition rather than body size. The highly digestible BMR sorghum will do the same. NON-BMR forage sorghum species will fill the animal to maximize rumen development and function without getting the animals over-conditioned. Managed correctly it will run higher than corn silage in protein and so reduce expensive soymeal additions. It is higher yielding than BMR (the same thing happens with corn). Farmers re-

port they are growing better, large framed replacement animals when they switched to sorghum as the preferred forage.

My research, and that from Wisconsin, found that one-cut management of sorghum sp. with a rowless corn head will double yields, with little reduction in quality, and cut harvest cost nearly in half when compared to multi-cut management. Thus, your harvest costs/ton are one-fourth that of multi-cut. By not laying it down in the dirt, forage quality is maintained free from contamination. On the downside, our work found that most sorghum, even the Brachytic dwarf type, and especially sorghum-Sudan stalks, will lodge as the grain fills past the early dough stage. Thus, you have a choice of harvesting at lower feed quality or dealing with lodging. This has been a major limit to farmer adoption. We tried photoperiod types that don't head but they never got drier than 17—18% dry matter and never increased the digestible components to what we need for dairy. Even without a head it still lodged in our trial. Normally the majority of nutrients from the seeded type are sent from the leaf to the grain the same as corn. In sorghum matured past the early dough stage, the seeds are nearly all wasted. Sorghum seed becomes very hard and is too small to effectively break with a processor. Thus, it shows as energy in the forage analysis but the nutrients are wasted as glorified bird food in the manure.



Even lodging resistant brachytic dwarf sorghum will go down if the seed heads are allowed to mature like corn ears.

This led us to a huge breakthrough for dairy forage by developing **delayed harvest Male-Sterile BMR Forage sorghum managed for Enhanced Nutrient Concentration**. This crop will not produce seeds (if bred properly and not near other fertile sorghum). Our New York research found that of the BMR, the male-sterile without a fertile seed head, either sorghum or sorghum-Sudan, gave some of the highest yields and had the best standability with no maturing seed weight to bring the plant down. In paired comparisons, the male-sterile had higher NDFd digestibility than their seeded counterparts. We hypothesize that photosynthetic energy continues to build in the plant cells after heading, and is not translocated to the seed sink because there is no fertile seed. Thus, the feed quality and milk-producing ability of the forage continue to increase the more time we allow for the crop to grow after heading. Like corn, total yield does not increase, but the percent dry matter and the **dry matter yield/acre continue to increase each week** after heading as plant moisture is replaced by digestible carbohydrates. By delaying harvest for 6 to 7 weeks after the boot stage, we had **significantly more milk-producing ability in every ton of forage**. By not having fertile seed in the male sterile, the nutrients are retained in the forage plant cells. The longer the plant photosynthesizes past heading the more nutrients accumulate in the forage. Without a need for kernel processing, it is completely available to the cow as the rumen bugs break the highly digestible fibers down. This nutrient increase was proven in our 2020 replicated research. We are duplicating that work again in 2022 in New York and Tennessee. The few farmers who did try some are reported to be increasing their acreage this year as it worked so well. We will keep you posted on the research breakthrough.

Sorghum Planting: As soon as the soil at 2 inch depth is above 60 F and the forecast is for warmer temperatures the next two weeks, you can plant. Sorghum only needs **8 to 10 lbs. of seed/acre**. In my trials drilling yielded 18% more than 30 inch rows and had less lodging. Using milo plates and a corn planter set for 15 inch row space also works well. More information can be found in the [June 2021](#) newsletter (click to read).

Sincerely,

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Hand
to Better
Agriculture**

