

Could sorghum be a fit for your farm?

IT WAS Labor Day weekend during the 2011 drought in the Texas Panhandle when I noted a small landowner on an old tractor making a big cloud of dust dragging a planter in the West Texas dirt. It hadn't rained in a long time, and I am pretty sure we wondered if it ever would rain again.

I remember thinking that this guy had strong faith to be putting wheat seeds in the ground. I don't remember the details now, but it must have rained soon after because sometime around Thanksgiving, as I recall, that field was full of round hay bales of some type of sorghum hybrid. It was sorghum he planted, not wheat, and it made a harvestable crop between Labor Day and Thanksgiving.

Of course, I can't speak for the quality of the feed in those round bales, but the point is clear. Sorghum as a species is a very resilient plant. It is and has been my contention that it is an underutilized asset to most dairy producers. If this is true, then why the resistance? And why am I not giving up on this topic?

Too much of a good thing?

I wrote an article in 2014 for *Hoard's Dairyman West* posing the question, "Are you addicted to alfalfa?" After some real pushback from good folks who I respect in the alfalfa genetics business, and even having one large client plan to plow up all of his hay acres, I wondered if I had overstepped. We all know and love alfalfa, and it has been a great fit in supplying many key nutrients to a dairy cow. We also know its negatives, and in the years since that article, the overwhelming trend toward less alfalfa hay and more corn silage has been significant.

Perhaps in 2023, the title of a column should question our potential addiction to corn silage. While pondering all of this, I should remind us that cows make milk out of nutrients, not ingredients, and the flexibility of the rumen should allow us tremendous options to pivot when needed for any number of reasons. Pressures mostly related to water and perhaps broader sustainability issues seem to suggest we can utilize the ruminal flexibility to plant, grow, and feed more products that are from the sorghum plant.

A bit of plant science

After spending the majority of my dairy nutrition career in the arid High Plains and having endured two significant multi-year drought cycles in that period, I now find myself living and feeding cows in humid Florida. From a rainfall standpoint, the difference is dramatic. But guess what — in Florida, you still have to

irrigate corn silage to get economically sustainable yields.

Thus, the interest in dairies moving back to the Midwest seems logical. The opportunity for tighter soils and higher rainfall makes the Midwest and Upper Midwest great places to grow corn and make milk. But what about the Southeast and the West? Is it possible that sorghum is being underutilized?

The goal here is not to get into the weeds on topics like NDFD30 and uNDF240. That discussion can wait until later. Each geography has adequate yield and quality data from different hybrids; a great example of this is the Texas A&M AgriLife sorghum hybrid trials performed near Bushland, Texas. Perhaps this is more of an agronomy question and less of a nutrition question. Either way, if you are currently doing things like tying wells together or occasionally abandoning half a pivot to adequately make a corn or alfalfa crop on the other half, it could be that you should consider shifting acres to sorghum and improving your situation.

When we say sorghum, what do we mean? Is it grain? Is it forage? Or, maybe, can it be both? Yes, yes, and yes.

Let's first cover a bit of basic plant science. Sorghums that we typically grow for grain are often called milo. These have small, roundish grain berries that are much smaller than corn kernels. The forage part of the plant has many visual and nutritional similarities to the forage portion of the corn plant. Milo is grown for human consumption in Africa but is mainly used for animal feed or by the ethanol industry in the U.S.

When you look at a hybrid selection list for options to plant for the dairy, what you are mostly looking to plant is what is typically called forage sorghum, or more recently silage sorghum. These hybrids are similar in appearance to milo but are much taller, leafier, and may or may not produce a lot of grain. They may also be a brown midrib (BMR) variety.

Sudangrass is also considered a sorghum but is usually taller and leafier, and though it makes a seed-head, the seeds are much smaller, lighter, and have more of a grass seed appearance. When you think of sudangrass, think of its not-so-distant cousin, johnsongrass.

When combining the genetics of sorghum and sudan, we get a taller, more leafy plant that contains the best traits of both species for producing forage, grain, or a combination of the two. Remember, I am not an agronomist and especially not a plant breeder. But, since college, I have used the term "SxS" to designate sorghum-sudan hybrids for

feed production. They are a significant crop option around the world.

It takes less water

So, why sorghum and sudan for dairy? The answer is simple: Water.

These species are able to produce a crop with less water. There are many details to sort out for each individual farm, but suffice it to say, I am sure there are dairies hanging on to corn silage that would be better off with a high-end, well-thought-out forage sorghum or SxS cropping strategy.

The options are numerous. They range from old genetics for things called haygrazer or even simply "cane" to BMR options that can be tall or short and with or without a grain head. It is truly an amazing menu of options to match the nutrient needs and the agronomic factors and limitations involved.

These many options also can fit into a great variety of on-farm logistics. You may choose to multi-cut these plants with a swather for early cutting and a direct-cut option at the end. You may want to combine the grain heads as high moisture milo and then make a subsequent pass to make silage out of the leafy portion. I have seen sorghum successfully follow corn silage as a second crop in the South. Many of these more leafy options are great for daily greenchop.

A seat at the table

Now, there must be some downsides to this story. Yes, there are some. Most, however, are not problematic and would likely be an even greater risk to a corn crop.

These species tend to be nitrate and prussic acid accumulators, and care should be taken when those risk factors are in play. I am not an expert here, but there may be some crop insurance limitations that would favor corn.

The two biggest factors, though, are simply related to trying to push a sorghum plan into a corn infrastructure. How do you price it? Is it a factor of December corn? Is it a set discount to corn silage?

And what has proven to be the most difficult is to figure out how to make a fair relationship between the farmer and the dairy producer for the best value for each. The farmer

fears the risk of a lower return per acre, and the dairy fears the risk of lower milk production and/or higher grain costs to keep the ration in top-notch shape. Both of these risks can be alleviated with adequate effort.


Much of the conversation to this point has been about the forage part of sorghum. This is probably appropriate as the roughage supply is always the biggest risk for the dairy. But what about the grain portion?

The good news is that the grain contains high starch. It is not quite as high as a corn kernel, but the protein being a little higher helps close the value gap. It is true that milo grain should be valued lower than corn. How much lower depends on many factors.

The more important issue to navigate is how to best process the smaller milo berry. It is very difficult, if not impossible, to adequately process the grain in sorghum silage. There are efforts afoot here, but it is a challenge.

As well, when milo grain is simply harvested as such in the fall, feed mills set up to grind or flake corn seem to struggle with doing a good job with milo. This is the easiest problem to solve with a great upside. Steam-flaked milo is a great starch source in a high-corn silage diet. If the diet is built around higher feed rates of a leafy hybrid of sorghum silage, perhaps steam-flaked corn is a good pairing. The successful combinations are numerous.

Is it easier to just plant corn? Usually, yes. Is it always the right choice? No.

My challenge for you is to stretch a little and do some homework with your agronomist and nutritionist to see if some type of sorghum for your milk cows can improve your margins. Much of the general disposition regarding sorghum species comes from years and years of sorghum acres being the afterthought when the corn had been taken care of. Perhaps giving sorghum a better seat at the table would not only make it a better product to feed but also bring a strong financial return to both the acre and the cow. 

The author is the founder of DNMCmilk, which works with dairy producers and heifer growers in several regions of the U.S. and around the world.