



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."

Getting Sorghums Off to a Good Start

As farms search for the holy grail of milk production: higher quality forage at lower cost, more are trying the latest research on the production of BMR and non-BMR forage sorghum or sorghum-Sudan. With some corn varieties topping \$350 a bag (\$140/acre), BMR sorghum at 10 lbs. seed/acre is only about \$20/acre, a lower cost before the crop is even planted. Nitrogen is similar to a good corn crop, and with seed treated by a safener, the proper herbicide can control the weeds. Research trials in the northern region of the US have resulted in mean yields of 35% dry matter silage that exceeded both the mean and the max yield of a corn variety trial planted next to it. Sorghum is easy to grow if you follow top yield practices. As you move further south into Ohio, Pennsylvania, Virginia, and Kentucky, the potential for the crop increases even more. Sorghum thrives in these areas that frequently turn hot, dry, or both. Corn silage stops growing at temperatures over 85 F. Sorghum continues to grow up to 105 F. Conversely, in cool or cold summers, all sorghums can standstill. Corn will then clearly out-yield the heat requiring sorghums species. The forecast is for a slightly warmer than normal summer.



Advanced Ag Systems
Research, Education, Consulting

The first critical step is to plant in soils that are at 65 degrees and the forecast for the next week is for increasing temperatures. If you rush and plant in cool soils (less than 65F) and delay herbicide, you are screwed (*agronomic technical term*) because the weeds will overrun the field. We know this from hard experience where June 3, 2016 (normally well into summer for us) we spent 2 days planting a complex management trial. Three days later when the seeds were imbibing water and swelling, we were hit by 40-degree rain (photo at right). Soil temperature at the three-inch depth dropped to the low 50's. The entire stand was wiped out by seedling chilling injury – it can affect corn also. The first step of sorghum planting is to watch the weather.



This nice trial is a disaster. The green is the alleyways, the brown is the trial that did not grow due to a 40 F rain after planting.

Planted at a 1-inch depth, we strongly suggest drilled in narrow rows, or planted in 15-inch rows or less if you have a chopper with a row-less head. If you do not have access to that equipment, we suggest you use bmr Sudangrass or bmr sorghum-Sudan and utilize a multi-cut system with round bale wrapping. A single-



Narrow drilled rows left and right intercept maximum sunlight before 30 inch rows center.

cut system will **yield twice as much and at ¼ the cost /ton** as a multi-cut system. Even though the crop is not planted until late May or well into June depending on your location, the **narrow rows maximized sunlight interception (maximize yield potential)** in two to three weeks.

Corn in 30-inch rows (picture on right) is missing more than half of the sunlight more than a month after emergence. Sorghum species will tiller to fill in thin spots which capture all the sunlight so the result is a solid layer of leaves completely covering the ground. Our replicated trials gave **18% more yield** in a six-inch drilled row than in a 30-inch traditional planting. For forage sorghum we suggest 10 lbs. of seed/acre drilled; 8 lbs. seed/acre for 15-inch rows; and 5 lbs. seed/acre for 30-inch rows. A higher seeding rate in wide rows significantly increased the lodging.

Weed control is straightforward. We buy seed with a safener and use atrazine plus metolachlor or another registered grass control herbicide. The absolute key is to **spray as soon as you get done planting**. Delaying will allow the annual grass to get started in the warm soil and the herbicide may not work and you are (see agronomic technical term on previous page). For organic farms, we do **NOT suggest sorghum**, especially the brachytic dwarf that comes up very slow. It is a prescription for a weed disaster. We have tested the smaller seeded, higher population sorghum-Sudan drilled into a warm stale seedbed. We increased the seeding rate to about 60 lbs./a and had maximum yield and no weeds. Yields equaled or even exceeded that of sorghum. The warm soil allows rapid emergence and the crop essentially doubles in size each week. When more than a foot tall we have measured growth of **3 inches/day**. Given a chance it will outrun the weeds.

Corn rootworm is a non-problem as the worms are killed if they feed on sorghum. Adult rootworm does not lay eggs in it so corn is not economically threatened the next 2 years after (cheaper seed corn). **Armyworms could be a problem** (photo at right) and can and will devour an entire field. Deer hide in sorghum and come out to eat the neighbor's corn. Male sterile when it hits 18% sugar on a dry matter basis would probably be a candy store for the local bear population.

Nitrogen is a wild card. Sorghum is very efficient at picking up and retaining nitrogen due to its very fine and potentially deep root system. We get a yield curve on our nitrogen trials but looking back at the data we got an increase in crude protein when we continued to add more nitrogen past the point of yield increases. This is exactly what we learned in fertilizing winter forage. The nitrogen level for yield and the nitrogen plus sulfur level for protein is very different. Farmers and nutritionists get jumpy at this point due to legitimate concerns over nitrate toxicity. Research has shown that a big part of that issue is not the nitrogen but the **SHORTAGE OF SULFUR**. We will be working on this question but until we can nail it down, the suggestion is to fertilize it like corn silage **WITH THE ADDITION OF SULFUR**.



Drilled in narrow rows, sorghum sp. rapidly cover the ground to maximize sunlight interception (yield) and to minimize erosion.



Once weeds get started, especially annual grasses, there is little you can do. The key is rapid sorghum emergence and if not organic, herbicide applied immediately after planting.



You can't plant and forget sorghum. Here uncontrolled armyworm outbreak cleaned much of the crop out.

Sincerely,

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