ADVANCED AG SYSTEMS'

Crop Soil News

http://www.advancedagsys.com/

March 2016

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

Advanced Ag Systems
Research, Education, Consulting

Cliff Notes: Forage Sorghum.
Spring Nitrogen for Winter Forage & Grasses

We have been getting a lot of questions from farmers interested in trying bmr forage sorghum. The January letter on Advanced Ag web site (top of this letter) went over a number of background details. This letter is the summary of what we learned so far planting bmr forage sorghum (research continues this year). If you are round baling we suggest the finer stemmed one or multi-cut BMR sorghum-Sudan or the multi-cut Sudan x Sudangrass which has higher digestibility. We dealt with bmr sorghum-Sudan in the February letter.

Varieties: Forage sorghum is managed in the north as a one cut crop. It is directly harvested with a corn chopper or an omni-direction corn head. There are BMR's 6, 12, and 18. An agronomically poor BMR 6 will not yield as well as an agronomically superior 12 or 18. If all are equally good agronomics (equal yield), then the BMR 6 will produce more milk than a 12 or its allele 18, based on work by Dr. Grant of Miner Institute. All the BMR's will produce more milk/ton of dry matter than a non bmr. I would suggest only growing non BMR for a cover crop.

BMR brachytic dwarf sorghum does not have to be tall to yield over 20 tons of silage/acre. The most common mistake is planting it to thick.

A new wrinkle in the choice is the bmr brachytic dwarf forage sorghum. Formerly bmr sorghums were 11 – 12 ft tall on a pencil thick stalk. As soon as the grain head started to fill, they fell down (lodging). To correct this a brachytic dwarf gene was developed that has the same number of nodes as a tall variety, but each node is slightly shorter. This produces a plant with all the leaves of tall one but less lodging problems. It still yields very well. The comparison is like a 7 ft tall basketball player and a 6 ft. tall football linebacker. The shorter linebacker will outweigh the taller basketball player. Thus the 7.5 to 8.5 tall brachytic dwarf has yields as good as the taller varieties. Make sure it is a brachytic dwarf, not just a dwarf. The latter is just a short plant that doesn't yield as well. There are a number of the tall bmr varieties that can also yield very well. The key with those is to harvest them as soon as the head gets all the way out and starts to fill. It doesn't take much grain fill for it to start falling down.

The number one mistake we have made with forage sorghums is planting them too thick. The higher the population, the smaller the stalks. The smaller the stalks, the easier it is to fall over in a wind. As long as it is planted at 8 or less than 10 pounds/acre seed (not 11, 12, 15, etc) both brachytic and non-brachytic forage sorghums have stood well through to harvest. We suggest utilizing a 5 pound seeding rate for 30 inch rows as the plants are crowded closer together in the row. If you plant higher than suggested populations we have found you have thin stalks that both fall over easy, and have a high percentage of rind to pith which – similar to high population corn, can reduce overall plant digestibility. It also doesn't feed into the chopper as well.

You need to review the January issue of this newsletter for suggested seeding procedure (on web site). (Note: the January issue table on row width contained an calculation error—the yield increase with narrow rows is not so clear cut). It is very important to plant when soil temperature is above 60 F and increasing. If there is a cold rain in the immediate forecast, wait until that passes. This is a crop for warm conditions. **IF YOU ARE IN A COLD REGION IT WILL NOT YIELD WELL.** In those areas shorter season corn is a better option. At present I don't know how far north/cold that is. It will also not do well in anaerobic conditions as nitrogen is critical for growth.

Along with warming soil, we suggest that you plant ½ to 1 inch deep for our northern areas. This gives rapid emergence because the soil is warmer closer to the surface. It is a drought tolerant crop which seems to sprout on very little moisture.

Make sure your seed dealer supplies you with Concept or similar seed treatment that allows both atrazine and metolachlor. If applied immediately after planting (crop emerges very fast unless a brachytic dwarf), you will usually have excellent weed control. There are some post emergent broadleaf herbicides. There are NO post emergent annual grass herbicides that we know of for the northern states. If annual grasses get a running start you are screwed (an agronomical technical term). Thus it is critical that you plant into warm soil for rapid emergence, and apply the pre-emergent herbicide as soon as you pull out of the field with the planter. Those who delayed, regretted it.

Fertilizer is very similar to corn based on our limited research so far. If you had been applying manure the past couple of years to the field, you could go lighter on nitrogen because of its tremendous ability to scavenge the soil with its fine root system.

For taller non brachytic bmr varieties, harvesting at early head fill will have a forage at about 25% dry matter. Chopping at one inch or greater will reduce leachate tremendously. Utilizing a homolactic bacteria (we suggest no enzymes based on the limited on-going work we have done so far), we have had excellent fermentation so far. Because it is not mowed and dried, there is little soil contamination to spoil the feed. Sugars at this point are very high which drives rapid, complete fermentation. TDN at that point has run over 60%. Letting the head fill will increase the TDN another 10 points, at the price of it falling over and lodging at about 2-3 feet off of the ground. This is why the breeders developed the brachytic dwarf. It has improved stand ability which allows the head to fill with starch; increasing the total digestible material from each acre. At early soft dough (top kernels are the consistency of cooked oatmeal), the plant will still be standing and dry matter will be about 28 to 30%. The TDN will be over 70% and about 25% of the dry matter is starch. We will discuss harvest details in a later issue this summer.

Nitrogen for Winter Forage and Grass Stands.

The companion of bmr forage sorghum has been winter forage, most of which is triticale. Research on spring nitrogen for triticale found that a two dry matter ton crop of winter forage removes over 100 lbs of N/acre. Applying manure before **early planted** winter triticale (a week to 10 days before wheat planting date), allows it to take up and store 40 to 60 pounds of nitrogen or more. Thus you may only need about 60 pounds of additional N in the spring. This is on going research on which we will keep you posted. To get both yield and protein from your forage, crops need sulfur. There is no longer enough sulfur being deposited in rain to meet the needs of the crops we grow. For a field that has not had manure last fall it is highly suggested that sulfur be added. A very effective ratio is 1 lb. of sulfur for every 10 lbs. of nitrogen. Urea mixed with ammonium sulfate will produce a 40-0-0-4S mix, perfect for **all cool and warm season grasses,** in addition to the winter forage grains such as triticale.

3.5-4.25 Tons of dry matter from winter triticale has been achieved in NY. This needs a considerable amount of nitrogen. Previously applied manure can supply a significant amount of this in addition to critically needed sulfur for protein formation.

Don't apply nitrogen on snow covered ground. It is a prescription for high losses of your investment and low return on the crop. Losses were as **high as 44%** with an average of 26.3% loss when applied to cold or frozen surfaces, especially if they are high in water and/**or have some snow on them**. If you get rainfall or snow **after application** on non-frozen ground, the urea has much less loss. It is highly suggested to add an anti-volatization agent even under low temperatures in the spring. This will inhibit the urease enzyme from splitting the urea into ammonia that is then could be lost**. Treated urea loss was 63% less** than the untreated in the same field. An anti-volatilization agent in research kept losses under 10%. The addition of an anti-volatilization compound increases the chance of full return on your fertilizer investment.

Sincerely,

Thomas Kilcer,
Certified Crop Advisor

172 Sunnyside Rd
Kinderhook, NY
12106

Tel: 518-421-2132

tfk1@cornell.edu

The Helping Hand to Better Agriculture