ADVANCED AG SYSTEMS'

Crop Soil News

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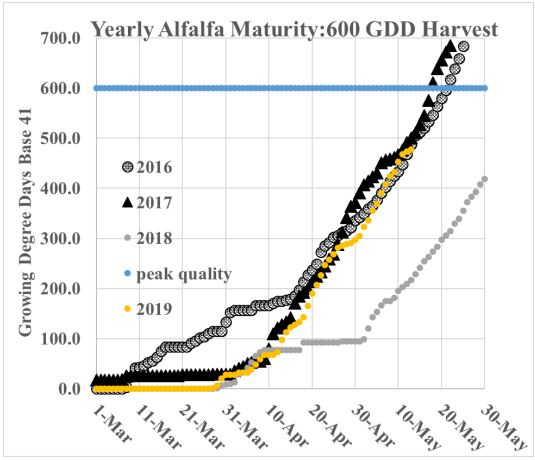
June 2019

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

Advanced Ag Systems
Research, Education, Consulting

Haylage & Sorghum

Don't panic. I wrote last year: "This season has seen much of the Northeast and Northcentral with one of the latest dates to start planting corn." Well, this year will be as late as last year and we had some very good corn silage crops last year (if you were able to get them out of the field).



You need to focus on your **haycrop**. Last year (see graph at right) haylage was record late in maturing. This year it is right at normal due to a few very warm days. **HAYLAGE LOSES QUALITY EACH DAY.** Corn loses just a small amount of yield each week. **Wait on corn planting**. Don't panic and mud it in, (June corn did better than mudded in/replanted May corn) risking poor stands and season long limits on yield potential. Very little yield has been lost, and quality will not change unless June is wet then fiber digestibility will be down and there is nothing you can do about it anyway.

In my area (Albany, NY) winter forages are being harvested in the tiny windows of nice weather. Cool season straight **grass is ready NOW.** Alfalfa blew through the 13-inch height indicator for straight grass harvest last Friday. John Winchell of Alltech has come up with another phenological predictor (when a plant predicts the management stage of a different plant) of grass being ready for harvest: when the dandelions start to make the white fuzzy heads. Mined started the day after the alfalfa hit 13 inches tall so both are on target. The advantage of dandelions is that they are all over – not every grass field has alfalfa.

Location, slope, and drainage (fields you can drive on) will have an enormous influence on harvest date this year. Use Dr. Cherney's system to determine when your specific field is ready. List your fields in order that they are ready, utilizing the system described in May 2018 newsletter. As you go down the list and a field is ready but it rains for two days or is too wet to support equipment, leave that field and take the next one in line that is ready. Don't make everything late trying to get one field that has already gone by. Pick off fields as they reach peak quality – this is needed for your high cows. Go back after and get the ones that you skipped and store that forage separate for the low cows and heifers.

Winter forage chopped at 3/4 inch to reduce leachate and maximize extant of rumen digestion

It will be a challenge to get haylage dry. As I mentioned in the May letter, wide swath is key. A tedder is also key to dropping moisture levels. A neighboring farm switched to a longer length of cut (3/4 inch) for his winter forage (picture on previous page) and had little or no leachate from the somewhat wetter forage. We saw this in our sorghum research. The longer length of cut greatly reduced the leachate and supplies more effective fiber for greater extant of digestion. The other issue this spring is that with one day sunny, cloudy and raining the five days previous, plants could be in negative energy status. This could compromise the fermentation. I would suggest a homolactic inoculant that has enzymes to break down the readily digestible fibers and produce sugars so we have fermentation for the lactic to grow on.

Forage Sorghum Use on Today's Dairy Farm

With the shortage of forage from last fall's weather, the cost/ price paid squeeze on producing/ selling milk; and research uncovering more potential forage crops; sorghum and its related species are experiencing renewed interest as an adjunct to corn silage. The research we have conducted over the past several years with the support of the **New York Farm Viability Institute**, has helped us develop a management program for the Northeast and North Central regions.

Direct cut, one cut BMR sorghum or sorghum-Sudan keeps field cost low while more than doubling the yield/acre, yet maintaining high digestibility.

With some corn varieties topping $350 a bag ($140/acre), BMR sorghum at 10 lbs. seed/acre is only about $20/acre – **a direct savings of $120/acre** 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. Sorghum is easy to grow, but if you plant in cool soils (less than 65F) and delay herbicide, you are screwed (agronomic technical term) because the weeds will overrun the field. Corn rootworm is a non-problem as the worms are killed if they feed on sorghum. Adult rootworm do not lay eggs in it so corn is not economically threatened the next 2 years (cheaper seed corn). Armyworm could be a problem. Deer hide in sorghum and come out to eat the neighbor's corn.

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 turns 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 stand still. Corn will then clearly out-yield the heat requiring sorghums species. This year is forecasted to be slightly warmer than normal across the Northeast and normal in the Northcentral. Under dry conditions, sorghum species will produce twice as much dry matter on an inch of water than does corn silage. When there is excessive water it hyperhydrates and you have to wait for it to metabolize the excess moisture out of its system. Because of its high sugar content it can be successfully ensiled at higher moisture if a proper inoculant is used. With the proper varieties and good management, silage yields have equaled or exceeded corn silage in tests over multiple years.

Where sorghum species fit:

Sorghum can produce a much lower cost forage for the **dry cows and heifers** you have to feed. **Heifers will get fat on BMR sorghum** because the slow rate of passage allows a very high extent of digestion. Our research had the same rate of gain on beef animals over winter as we did with corn silage (Northeast SARE study). If you have higher quality haylage, utilize a **non bmr** type of sorghum to fill them up yet reduce the chance of them getting over conditioned. In any case, sorghum is less expensive per ton of silage forage for these animal groups. Another cost savings for hard pressed dairy farms. The off peak planting (early June) and harvest (end of August beginning of September) windows balances the workload on the farm.

An **experimental** use of sorghum is a replacement for scarce, expensive, wheat straw as a fiber source in rations of dry cows. It is NOT wheat straw. Wheat straw has a uNDFd 240%DM of 35.6. The non bmr sorghum in a trial had a uNDFd 240 % DM of 22.3. So in theory it would only supply 2/3 of the effectiveness

and longevity of the wheat straw. Utilizing a regular (not a BMR) sorghum or sorghum Sudan, it can be chopped long (**1 inch minimum)** and ensiled. Thus, you will not need to chop straw each week, nor need to wet it so it mixes in the ration. The fibers are very slowly digested and so will remain longer in the rumen providing an effective rumen mat. In 2017 research a non bmr variety yielded over 32 tons/acre of 35% DM silage and stood like a tree—no lodging. In one early experiment, I chopped a BMR type at 22 mm long (longest that chopper would go) and opened the processor all the way. It produced a very interesting shredded product (see photo top right. We have learned as a fiber source it would have been better if it had not been a BMR type with its low lignin and if it had been cut longer. You can see in the picture at the lower right the difference in effective fiber from a BMR vs a non BMR type sorghum. In Texas, Brent Bean agronomist of the Sorghum Checkoff research reports that farmers routinely chop their sorghum at an inch to 1.3 inches. They report the animals clean up everything in front of them.

BMR sorghum chopped at ¾ inch with the processor open about a half of an inch. It produced a shredded product

Non bmr flail chopped with plot harvester on left, **bmr** flail chopped with plot harvester on right. Note the fibers resistant to degradation. A field chopper would leave fibers at the chopper's length of cut setting so the cows would consume them.

Where sorghum fits perfectly in a rotation, is to plant it early/mid June as a setup for next year's legume seeding. Harvest it by the end of August or the beginning of September (assuming NY climate regions – adjust for other areas). This will maximize the NDFd 30 of the sorghum while optimizing, through planting date, the yield potential of the winter forage triticale. Harvest the winter forage the next spring and utilizing a no-till seeding, plant the alfalfa in early June into the winter forage stubble in early June (described in February 23, 2019 Hoards Dairyman, and also in Alfalfa Seeding in Harvested Winter Forage . You will get better seedings, balance the spring workload, and still harvest 3 – 5 tons (winter forage plus legume cutting) of dry matter from that acre in the seeding year.

Both sorghum and sorghum-Sudan can be harvested as a **one cut system that will double the yield** over a multi-cut while reducing harvesting cost. We are suggesting a male sterile BMR sorghum type as it has given us maximum yield with minimum lodging. The energy is stored in plant cells and digestible fiber, not seeds. Drilling or 15 inch rows are preferred to optimize yield and shade the ground. The most critical step in establishing sorghum is to wait until the soil is warm enough (**62 – 65 degrees at 1 inch** planting depth) and **INCREASING the next week** of weather. Plant at 3/4 to 1 inch deep. Fertilize similar to corn. A **safener treated seed** allows you to use a herbicide (atrazine plus metolachlor). Organic farms we suggest sorghum-Sudan (not brachytic sorghum on organic farms, it emerges too slow) drilled at 60—65 lb.s of seed into a stale seed bed. The March Pro-Dairy (March 2019 Pro-Dairy) has a much more in-depth discussion and more details on growing sorghum species successfully. More information is found on YouTube short videos of Why Sorghum in the North and Selecting Sorghum Varieties for the North

Sincerely,

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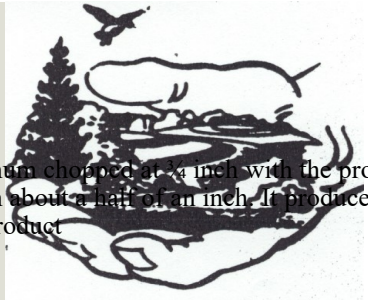
The Helping Hand to Better



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