ADVANCED AG SYSTEMS'

Crop Soil News

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July 2019

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

Advanced Ag Systems
Research, Education, Consulting

Alternative Crops for Alternative Crops?

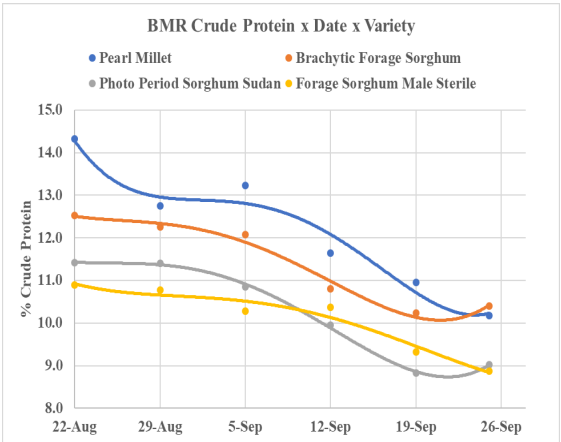
"*What is happening in the Corn Belt is a mini version of the transition from the Medieval Warm Period to the Little Ice Age. .... The breakover from the Medieval Warm Period to the Little Ice Age in Europe had sustained periods of bad weather characterized by severe winters and rainy and cold summers .... The Modern Warm Period ended in 2006. Current solar activity is back to levels of the Little Ice Age. D.Archibald (Full article at* Setup is Like 1315).

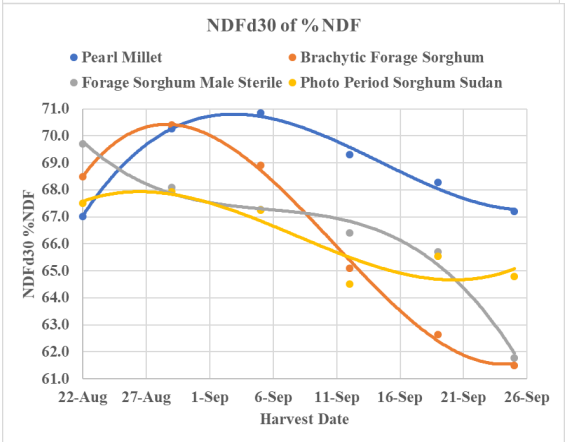
BMR Pearl Millet compared to Sorghum sp. on right and high yielding experimental BMR Pearl Millet on left.

As the screwed-up season continues into a bigger mess, more farms have come to the realization that their first cutting is much less than expected due to extensive legume stand loss over the winter. The crop did not come back. Those with alfalfa and grass are much better off as the grass can be fed with nitrogen and sulfur. Fertilizer combined with the cool temperatures and copious rainfall, could give you almost the same yearly yield providing you are mowing at 4 inch cutter bar height.

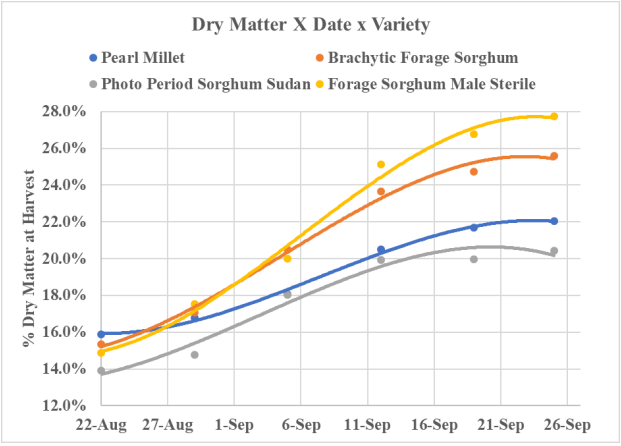
How do we replace haylage. There are two answers. First, you go to a heavier corn/bmr sorghum silage diet by planting on the killed fields. Second, you switch to alternative crops.

After your first cut alfalfa, when you realize that there is a lot less than you hoped for, it is time for planting a warm season crop that will be highly digestible and high crude protein to replace the alfalfa you need to feed. Since you are way past the oats that we discussed in the April newsletter the next **suggestion is Brown Mid Rib Pearl Millet.** The process is to plant a warm season haylage type crop that gives very high quality forage and is harvested before the beginning of September. You then spray the regrowing stubble, and immediately plant triticale winter forage for the earliest high quality forage next spring. Yes, you could use higher yielding BMR sorghum or Sorghum-Sudan. Sudangrass is also an alternative but much less yield. Both of those crops produce more of a corn silage type crop.





The pearl millet planted beginning of July, produced 12.2 tons of 35% Dm silage or **4.3 tons of dry matter/acre; more than alfalfa**. The graph top right on the previous page, from our NYFVI funded research, shows the crude protein of bmr pearl millet grown near Albany, NY. It is much higher than the other sorghum species choices, and would have been even higher if we had more nitrogen to supply the crop. The NDFd 30 % NDF (previous page bottom right) was the **highest of the crops** we grew. It held until the head started in the boot (like winter forage), in this trial about September 5. Pearl Millet is only half as tall (picture on first page) as the sorghum Sudan's but is much denser. In a good stand it is impossible to walk over the ground and touch the soil. If you cut it with a directionless corn head you will **leave 1/3 to ½ of the yield of digestible forage in the field.** We suggest mowing with a hay mower wide swath; carefully ted it after two hours of drying, and then chop. Using this system is also suggested because of the high moisture content of the crop (graph above). We suggest a **minimum 3/4 to 1 inch length of chop and a homolactic inoculant**. We are testing a newer taller bmr pearl millet that works even better as it can be directly chopped, but it has not been commercially released yet (in left of photo on previous page).



Fall spring oats, fresh forage, dry matter basis, 2010	
Crude Protein	**17- 20%**
IVTD 24	**85 – 90%**
Simple Sugars	**>20%**
Kd/hr	**8 – 12 (not a misprint)**

Fall Spring Oats: A number of times we have planted spring oats in early August (for Albany, NY area) and it produced tremendous growth. Because of the increasingly cool fall temperatures, the forage quality was so high we called it **"green grain";** as you can see in the table at right! It is simple, but not foolproof to grow. Unless you take proper steps it can get screwed up. For more northern areas, planting the first of August is possible. For the Albany NY area we target about the 10th of August; while further south, they plant later. Unfortunately, these delays reduce yield, but the reason is to wait for the cool nights of August to reduce the aphid population. We planted oats once the end of July and by the end of August all the oats were dead as aphids brought in Barley Yellow Dwarf Virus. Aphids can infect the plant with BYDV in less than 30 minutes. We strongly suggest **using a neonic seed treatment** as they are effective in limiting aphid feeding, based on research from the Cornell IPM coordinator. Cool nights with heavy dew seems to knock the aphids and reduce the potential for loss. A moist fall can hammer this excellent plan by a **major outbreak of rust**. Scouts report leaving the field so covered in rust spores that they looked like the orange highway cones. It will reduce quality and yield. A highly suggested practice is to **apply a fungicide** to the oats when they are **starting stem elongation**. If you have a cereal leaf beetle outbreak an insecticide can be applied at the same time as the fungicide. Don't take short cuts and lose the crop.

We suggest **three bu/a of grain type oats**. My research, which duplicate earlier work in Ohio, found **NO yield increase from increased fall oat seeding rate.** Grain oats will go through its life cycle quicker and so be ready at the end of September when you still have some heat to dry it for silage. If you are not going to be able to plant until later or have to harvest or graze later, then the slower forage oat type would be the better recommendation based on Ohio research. Be liberal with the manure and immediately incorporate it to capture the ammonia nitrogen. In a 2010 study we had a relatively low yield of 2 tons DM/acre due to extremely dry weather. In spite of the low yields, we removed 120 lbs of nitrogen/acre as protein. Because much of this nitrogen has to be the rapidly available fraction, high manure application rates (our case, 10-12,000 gal/a immediately incorporated on low P & K) are justified. **NOTE!:** If you applied manure before planting, it is **NOT** recommended that you feed this to dry cows. In our recent study on a field that soil tested very low in potassium, with one heavy manuring potassium levels were 3.36% in the oats. In an earlier study on a high fertility

field (behind the barn) we reached potassium levels of over 5%. This is **NOT for dry cows**.

For high producing dairy cows, mow as soon as the flag leaf is out. This forage will help to offset some of the poorer quality we were forced by weather to harvest this spring. Do not wait for the traditional "boot" stage unless you need more volume of lower quality forage. "Lower quality" is a relative term as it still is very good forage at boot stage (see table on previous page). The reason for this is because of the very cool night temperatures inhibit respiration of the most digestible parts, and they accumulate in the plant. Frost only hits the tops and the rest of the plant keeps growing. We often have green oats into November or until the first snow. As soon as it hits flag leaf, **mow wide swath**. You are trying to dry something that can yield 2 – 3 times more tons of dry matter than a heavy alfalfa first cutting, compounded by cooler temperatures and much less intensity and hours of sunlight. Even with wide swath, because of the weight, it comes out the back of the mower and lands with a *splat.* The high yield shear mass will allow only the top to dry. As soon as the top has a light grey cast (pick up a surface plant and see if it is greener underneath) hit it with the tedder to get the lower layers spread and drying. **It is critical that it be ensiled the same day you mow** because of the very high sugar levels (exception to rule: if it goes into the 30's F at night it stops respiration and sugar loss). Leaving it over night in warmer temperatures, burns off the sugars and produces higher populations of Clostridia and higher levels of butyric acid. With same day haylage these are reduced or eliminated even at higher moisture conditions. On the flip side, the very high sugar levels, if preserved until you ensile the crop; will speed the process and produce an excellent fermented forage if inoculated.

Mowing fall oats at 3.5 inches gave full growth to the winter triticale the next spring.

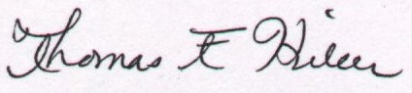
Fall Spring Oats with a Seeding of Clover and Grass. Some would be tempted to do this. I tried and the seeding **failed spectacularly**. Properly fertilized and planted oats completely shaded the ground and the only places the clover grew was where the drill skipped the oats. Been there, done that, don't suggest it!

Fall Spring Oats plus Winter Triticale. This is a trial where the beginning of August we planted oats and winter triticale (**100 lbs. oats/acre with 80 lbs. of triticale/acre).** After the oat harvest, the triticale continued to grow and produced an excellent forage the next year. It is **CRITICAL** that you mow the oats with the cutter bar set at a **minimum of 3.5-4 inches**. Where we did the triticale thrived. Where we mowed less than 3.5 inch the triticale died (see photos at right). We fertilized the triticale as normal the next spring and had an excellent harvest. This can give you two very high quality forage crops in one planting.

Mowing fall oats at 2.5 inches killed the winter triticale over winter

Last Chance Forage: cool season grasses put on a burst of growth in late August, September, and early October. Feeding the crop with nitrogen and sulfur can give you some very high quality forage for your dairy herd. It will be wet so we suggest chopping it ¾ to 1 inch long to reduce leachate. As with the oats above use a homolactic inoculant and ensile it the same day it is mowed (unless temperatures drop to the 30's at night to stop respiration then you can carry it over to the next day).

Sincerely,



Thomas Kilcer,
Certified Crop Advisor

172 Sunnyside Rd
Kinderhook, NY
12106

Tel: 518-421-2132

tfk1@cornell.edu

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