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# Crop Soil News

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February 2021

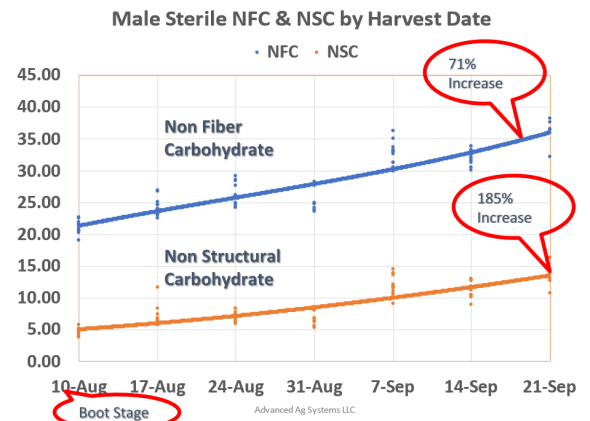
"It is the crops that feed the cows that make the milk which creates the money."

Advanced Ag Systems  
Research, Education, Consulting

## Sorghum Management Alternative Part II

In the [January issue](#) we covered the first part of utilizing BMR forage sorghum, male sterile version, to produce high quality forage for dairy production. The sorghum is cheaper to grow per acre than most corn varieties. Utilized the year before corn, it eliminates corn rootworm the first year or two after. Deer hide in it and then come out to eat the neighbor corn. The problem is that most sorghum has a grain head that as it fills, lodges the crop making it difficult to harvest. The use of a male sterile variety eliminates the weighty head on a thin stalk. Instead of increasing digestible components by filling a seed head (vitreous, hard to digest starch), it keeps those components in the forage cells. This increases the milk producing ability while simultaneously increasing the dry matter of the forage. The question we had was how long should you let the crop grow after heading before ensiling? In our study we went seven weeks post heading. As reported in the January letter, the **sugar component** as measured by wet chemistry, **increased 500% to 18.85% of the dry matter**. This was measured post fermentation (three weeks) so it reflects what the cows would be consuming from the ration.

There are more components that continue to increase. The **Non-Fiber Carbohydrates increased 71%** to within 82% of what normal corn silage produces. The **Non-Structural Carbohydrates increased 185%**. The NDF went **down 15%** which is the reverse of most crops as they mature, the reason is the fiber was being diluted by highly digestible components. The digestibility of the NDF that normally goes down with maturity, only dropped 8% over the 7 weeks and was 64.1 NDFd30-NDF. The starch increased 9-fold but was only 1/10 of that from the high grain corn silage comparison. The energy was held in the very high sugar in the cells rather than converted to starch (starch is 2,000 to 200,000 sugar molecules). The energy was there but in a different form. With skyrocketing soy prices, the bmr sorghum forage was 30% higher in crude protein (10.28% CP) than the corn silage. As you will see in the ration analysis this can be a significant economic factor.



The most critical factor in feeding high quality bmr sorghum is that **BMR SORGHUM SILAGE IS NOT CORN SILAGE!!!** This needs to be stamped on the forehead of your nutritionist. We had a 30,000 lb. herd in the Midwest that put bmr sorghum in the diet and they maintained production. We had one in NY that had the same herd average until they swapped corn silage for sorghum silage and the cows lost production. This clearly

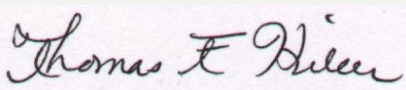
shows that **BMR SORGHUM SILAGE IS NOT CORN SILAGE!!** In the initial ration that Dr. Larry Chase (Professor Emeritus, Cornell U.) inputted, we did the simple swap. The 85 pounds of milk supported by corn silage dropped to 79.4 ME with the sorghum silage. Sorghum is slightly lower in energy than well eared corn silage, but is higher in crude protein. These rations contained 60% of the forage dry matter as sorghum silage and 40% as alfalfa silage. Rebalancing the ration the ME was the same as normal corn silage and the MP was considerably higher than the corn silage (see table below). The key is to increase the NDF feeding levels to 1% of body weight as it is higher digestibility than the corn silage. Note: as the NDF levels decreased in the later harvest dates, we were able to feed 2.6 more pounds of bmr sorghum dry matter to the cows.

If you look at the right side of the table below, you can see that the earlier harvested sorghum required 3.5 more pounds of corn meal (9.5 lbs.) than the corn silage (6 lbs.) to maintain milk production. It did it though with 1.2 **LESS** pounds of SoyPlus/cow/day. By allowing the crop to increase quality components with increasing time after heading, the energy accumulating in the plant increased until only 0.9 lb. of extra corn meal (27% reduction over early head harvest) was needed to match the corn silage potential milk production, and 1.1 **LESS** pounds of SoyPlus compared to the corn silage.

Plugging in the grain cost of last week (they are changing rapidly) the sorghum cost 100 cows over a 305 day lactation \$3,294 more in corn grain, and \$8,388 LESS in SoyPlus. If soy prices fall back to more normal ( whatever that is) the two crops on a feeding/economic basis will be nearly equal. Look back a the January issue at the cost reducing benefits of growing bmr sorghum to get the rest of the picture.

| Harvest Date     | Sorghum, lbs. DM | Alfalfa, lbs. DM | ME Milk, lbs. | MP Milk, lbs. | Corn grain, lbs. DM | Soy Plus, lbs. DM |
|------------------|------------------|------------------|---------------|---------------|---------------------|-------------------|
| Corn Silage Base | 20 Corn Silage   | 15               | 85.4          | 85            | 6                   | 3.5               |
| 10-Aug Sorghum   | 16.2             | 15               | 85.9          | 86.4          | 9.5                 | 2.3               |
| 17-Aug Sorghum   | 16.55            | 15               | 85.8          | 86.5          | 9.2                 | 2.1               |
| 24-Aug Sorghum   | 16.82            | 15               | 85.9          | 86.6          | 8.85                | 2.3               |
| 31-Aug Sorghum   | 16.3             | 15               | 85.9          | 86.5          | 9                   | 2.27              |
| 7-Sept Sorghum   | 17.6             | 15               | 85.8          | 86.4          | 8.3                 | 2.7               |
| 14-Sept Sorghum  | 18.1             | 15               | 85.8          | 86.6          | 7.6                 | 2.25              |
| 21-Sept Sorghum  | 18.8             | 15               | 85.7          | 86.4          | 6.9                 | 2.4               |

Sincerely,



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