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Produce more milk with BMR sorghums

Hereford, TX -- Dairy farmers are always looking for new ways to reduce feed costs and increase production. Brown Midrib (BMR) 6-Gene sorghum hybrids from Advanta help them do both.

Cows fed BMR-6 silage produce 10 more pounds of milk each day than cows fed regular sorghum silage, and the same amount as cows fed corn, according to a recent study at the University of Nebraska. Cows fed BMR-6 sorghum produced an average of 75 pounds of milk per day during the 15-week trial. The study also found that BMR-6 sorghum is 10 percent more digestible than regular sorghum silage.

“The lower production costs of sorghum versus corn make it even more attractive to dairymen,” says Ricky Rice, Advanta US forage specialist and sales manager. “Sorghum requires less fertilizer, water and insecticide use than corn, and it is readily adaptable to most dairy regions.”

According to Rice, the advantages of forage sorghums in a dairy ration are:

- improved animal health due to lower starch levels,

- increased milk components,
- improved rumen scratch, and
- lower production costs compared to corn silage.

Industry-leading BMR 6 sorghum hybrids are helping dairy producers do more with less. Not only are they more efficient to produce, they also feature low levels of lignin, which increase digestibility and feed efficiency.

“Lignin is the primary constituent that provides strength to the cell wall,” says Rice. “Lignin is very much like the rebar used in a concrete.”

“Lignin is the primary non-digestible component of forages – the higher the lignin percentage the lower the digestibility and quality,” he continues. “Brown Midrib 6-gene sorghums have 40 percent to 60 percent less lignin compared to conventional sorghums and are similar, and often times better, in nutritive value than corn silage.”

Digestibility of BMR 6 sorghum hybrids is superior to other BMR products and conventional sorghums and it is similar to corn. Studies have shown in-vitro total digestibles (IVTD) of over 80 percent for the BMR 6 sorghums (Table 1), according to Rice.

In addition to providing nutritional benefits to livestock, increased forage digestibility also provides economic benefits to the producer in a couple of ways. First, more digestible forages can be substituted directly for a standard forage and because of the greater nutrient availability, animal performance will increase. Second, the composition of the diet can be changed to reflect the additional nutritional value of the more digestible forage, which will reduce the need for costly energy, concentrates and reduce overall production costs.

Studies have shown that feeding BMR-6 silage in place of corn silage at either 35 percent or 45 percent of dietary dry matter resulted in greater milk production efficiency and higher milk fat percentage. The BMR-6 silage had greater NDF digestibility and cows fed the BMR 6 silage derived more energy from digestion of NDF compared with cows fed corn silage. Studies show that BMR-6-gene sorghum outperformed a conventional forage sorghum and BMR 18-gene sorghum, and was equal to corn silage (Table 2).

Phosphorus Digestibility

High producing dairy cows require approximately 0.40 percent phosphorus in the dry matter diet for optimal milk production and reproductive function. Phosphorus is often fed in higher amounts than is necessary. Research has shown a direct correlation between phosphorus dietary intake and manure excretion.

Phosphorus contamination of ground and surface water resources is the single most important environmental issue facing the dairy industry. Reducing phosphorus levels in

manure through dietary intake is an efficient and economical approach to reducing phosphorus loading rates on dairy farms.

“A BMR 6 sorghum-sudangrass ration has been shown to reduce fecal phosphorous excretion in dairy cows by 6 grams per day when compared to corn silage,” says Rice. “This amount of reduction in phosphorus excretion is potentially important from an environmental and economical standpoint. Feeding BMR 6 sorghums could significantly reduce the potential for surface and ground water contamination.”

According to Rice, the BMR-6 sorghum-sudangrass ration could result in approximately four pounds less phosphorus excretion per cow per 305-day lactation period, which is due to the high phosphorous digestibility of BMR-6 hybrid forages (Figure 1). This amount of reduction in phosphorus excretion is potentially important from an environmental and economical standpoint. Feeding BMR 6 sorghums could significantly reduce phosphorus loading rates, reducing the potential for surface and ground water contamination. Additionally, lower phosphorus levels greatly benefiting soil fertility relationships.

BMR-6 sorghum and sorghum-sudan hybrids from Advanta are helping dairy producers reach their nutritional goals while reducing the production cost of silage and thereby reduce their cost per hundredweight of milk produced.

Table 1. Quality Characteristics of Different Forages.

| Forage Type | Forage Quality Parameters | | | | |
|--------------------------------------|---------------------------|-------|-------|----------|--------|
| | CP % | ADF % | NDF % | Lignin % | IVTD % |
| Conventional Forage Sorghum | 8.3 | 29.9 | 49.1 | 4.4 | 75.5 |
| Brown Midrib 6 Forage Sorghum | 9.2 | 27.6 | 45.9 | 3.6 | 81.3 |
| Corn | 9.0 | 23.9 | 41.2 | 3.5 | 82.7 |

Bean, et al., Texas AgriLife Extension Service, 2001

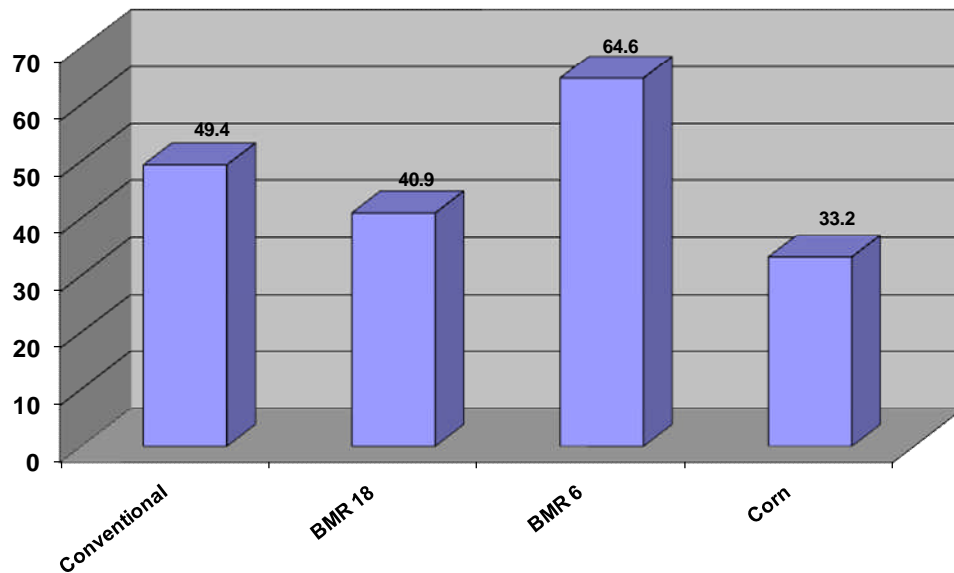
Table 2. Effects of Different Forage Sources on Dairy Cow Performance.

| Forage Type | DMI lbs/day | NDF Intake lbs/day | Milk Production lbs/day | Milk Fat % | Milk Protein % |
|----------------------|-------------|--------------------|-------------------------|------------|----------------|
| Conventional Sorghum | 51.04 | 22.88 | 68.20 | 3.57 | 2.89 |
| BMR 6 | 55.44 | 19.80 | 75.02 | 3.89 | 2.89 |

| Sorghum | | | | | |
|----------------|-------|-------|-------|------|------|
| BMR 18 Sorghum | 51.98 | 21.78 | 70.84 | 3.77 | 2.98 |
| Corn | 53.46 | 19.80 | 74.36 | 3.88 | 2.97 |

Oliver, et al., Journal of Dairy Science, 2004

Figure 1. Phosphorus Digestibility in Different Forages.



Advanta US offers unique germplasm for high quality forage sorghums, sudangrasses, hybrid grain sorghums, sorghums for biofuels and sunflowers. For more information on Advanta US and its products, go to: www.advantaus.com.

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