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Forage Producers Tech Guide: Choosing a Forage, Sorghum Sudangrass or Forage Sorghum

Hybrid sorghum sudangrass and hybrid forage sorghum have many similar uses. However there are distinctive differences between these two classes of forage. Choosing the right forage for any given situation requires knowledge about these differences. This paper describes four agronomic differences between these forages: prussic acid content, regrowth characteristics, palatability/digestibility at maturity, and iron chlorosis tolerance. In addition there is one man-made difference between these two classes of forage: LDP eligibility.

Prussic Acid Content: Both classes of forage produce prussic acid. The prussic acid content of both classes of forage is at the highest concentration when plants are in the seedling stage. As plants grow the concentration of prussic acid declines in both classes of forage. The difference between these forages is in the rate of decline. Hybrid forage sorghum may have a prussic acid content which is dangerously high until plants have reached the boot stage. By contrast, the prussic acid content of hybrid sorghum sudangrass falls more rapidly. The prussic acid content of hybrid sorghum sudangrass is usually at a level which is safe for grazing by the time plants reach a height of 20 to 24 inches. Because of this characteristic, hybrid sorghum sudangrass may be grazed safely at an earlier stage of growth. Note that prussic acid is primarily a concern for grazed forages or forage that is fed as fresh green chop but is rarely a problem with dry hay or silage production.

Regrowth Characteristics: When these two classes of forage are clipped by grazing animals or by haying equipment, there are differences in the regrowth characteristics. Hybrid sorghum sudangrass will regrow more rapidly and with greater vigor than will hybrid forage sorghum. Note that under good environmental conditions hybrid forage sorghums are able to make very respectable regrowth. However side-by-side, the regrowth characteristics of hybrid sorghum sudangrasses are generally superior to that of hybrid forage sorghums.

Forage Palatability and Digestibility of Mature Plants: Forage producers commonly refer to heading as the stage of growth that separates low fiber, high-quality forages from high fiber, low quality forages. In reality, forage height has a greater bearing on forage quality than does the presence or absence of a head. As plants increase in height, plant fiber content must also increase as a means of improving stalk strength so that the plant is able to remain standing. Increases in plant fiber result in a loss of both palatability and digestibility. For purposes of this discussion since heading is commonly used as a benchmark of forage quality, we shall referred

to forage quality prior to heading and after heading. Both classes of forage tend to make high-quality forages before heading. Many hybrid forage sorghums have been bred to maintain acceptable levels of palatability and digestibility after heading.

When surveying the hay production practices of hybrid forage sorghum producers, it is not uncommon to discover that in many instances hybrid forage sorghum is hayed after head formation and sometimes well after grain formation has initiated. Many of these producers will relate that the hay produced from mature hybrid forage sorghum plants is accepted and utilized by the animals being fed with good consumption and little waste. **By contrast, stories of animals utilizing and accepting mature hybrid sorghum sudangrass hay with little waste are very rare.** The palatability and digestibility of hybrid sorghum sudangrass will generally fall rapidly after heading. Consequently hybrid sorghum sudangrass, when harvested as mature plants, will produce a forage of poor to mediocre quality which animals will not utilize or consume efficiently. An exception to this last statement has developed with the introduction of the BMR trait in hybrid sorghum sudangrass. The BMR trait has substantially reduced the loss of quality associated with plant maturity in hybrid sorghum sudangrass. Please reference the Sharp Bros. Seed Co. Forage Producers Tech Guide: Forage Maturity and Digestibility, the BMR Effect.

Iron Chlorosis Tolerance: Some High Plains soils have high lime content and high Ph levels. These soils may cause crops to exhibit iron chlorosis. Crops vary in their ability to tolerate iron chlorosis. As compared to forage sorghum, sorghum sudangrass exhibits less iron chlorosis and has better tolerance to high lime, high pH soils. The symptoms of iron chlorosis are distinctive and can be easily identified with visual examination. It should be noted that plants which are chlorotic early in the season may recover with little effect on overall yield, or the crop may remain stunted throughout the season with significant loss of yield. The occurrence and severity of iron chlorosis within any given field can vary greatly from year to year. Fields with frequent iron chlorosis problems may be more productive when planted to sorghum sudangrass than to forage sorghum.



Pictured is hybrid sorghum sudangrass on the left and hybrid forage sorghum on the right growing side-by-side on a high lime, high pH soil. Although both forages are exhibiting symptoms of iron chlorosis, the condition has had little effect on the overall growth of the sorghum sudangrass. By contrast, the growth of forage sorghum has been significantly stunted.

LDP Eligibility: At the present time, spring of 2003, many forage sorghums are eligible to participate in the USDA FSA Loan Deficiency Program associated with grain sorghum. Hybrid sorghum sudangrass or any other class of sudangrass is not LDP eligible. Producers should check with their local FSA office for details.