

Illinois Grazing Manual Fact Sheet
SPECIES • ANNUAL AND ALTERNATIVE

Brown Midrib Sorghum-Sudangrass



What is a “midrib”?

Most grass plants have a very obvious vein in the leaf blade that extends from the base of the leaf to its tip. This vein is called the midrib.

What is the significance of the color brown?

Grass midribs are typically a whitish green color. Mutations of corn, sorghum and pearl millet have been identified that result in a brown midrib. The significance of the mutation is the plant tissues have less lignin than normal tissues. The brown color is also obvious in the stem, especially in cross section.

What is lignin?

Lignin is a compound with no predetermined order. It is formed with multiple reactions involving phenolic compounds (hydroxyl derivatives of aromatic hydrocarbons). It forms covalent cross-linkages with hemicellulose, but not with cellulose. These three compounds, hemicellulose, cellulose and lignin, are the components of plant cell walls.

Why is lignin important?

Lignin content increases as a plant matures and is thought to provide the structure necessary to help a plant grow erect. Whereas lignin might hold a plant erect; too much lignin results in less intake by the consuming animal and reduce cell wall digestibility. The mutation associated with the brown midrib trait results in a change in enzyme activity associated with the process of lignin formation. Less lignin and the chemical attributes of lignin occur with the mutation.

Brown midrib sorghums are available

Several varieties are now available, and others are being developed. Production Plus + Seeds, located in Plainview, TX, released ‘NutriPlus BMR’ brown midrib sorghum-sudangrass in 1996. Since, they have released brown midrib forage sorghums. These sorghums do not have the negative issue associated with corn productivity (Mike Northcutt, personal communication). ABT has released BMR 100 (forage sorghum) and SS200 BMR (sorghum-sudangrass). Improved palatability observed in 1998. Dry ewes had free choice pasture of NutriPlus BMR or a normal sorghum-sudangrass at the Purdue University Agronomy Research Center, West Lafayette, IN, in 1998. Keith Johnson, Forage Crop Specialist, Agronomy Department, Purdue University, was impressed with how ewes would graze the lower stem of the brown midrib hybrid in preference to leaf tissue of a normal hybrid. These observations resulted in similar demonstrations being sown in 1999 at the: 1) Beef and Sheep Units associated with the Animal Sciences Research and Education Research Center at Purdue University; 2) Feldun-Purdue



Ag Center; and 3) Purdue Agronomy Research Center. Differences in animal performance were also conducted in 1999 with replacement beef heifers at Feldun-Purdue Ag Center and with beef cows-calves at the Southern IN Purdue Ag Center located near Dubois, IN.

Where can seed be found?

Sorghum-sudangrass and forage sorghums with brown midrib trait are now available through several seed distributors.

Reference

Purdue University – Brown Midrib Sorghum-sudangrass – Taste Better, Less Filling, Keith Johnson – Forage Crop Specialist Agronomy Department, Purdue University.



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