


Feeding Value of Sorghum and Annual Forages

**John K. Bernard
The University of Georgia
Department of Animal & Dairy Science
Tifton Campus**

Corn Silage

- 
- ✓ High-energy, very palatable forage that works well in dairy rations.
 - ✓ Large selection of varieties that provide high DM yields.

Corn Silage

- Requires more water to grow than other crops
- Approximately 22 to 36 acre inches of water are required to produce 25 ton forage which can be a problem during a drought or with water restrictions that are becoming more common.

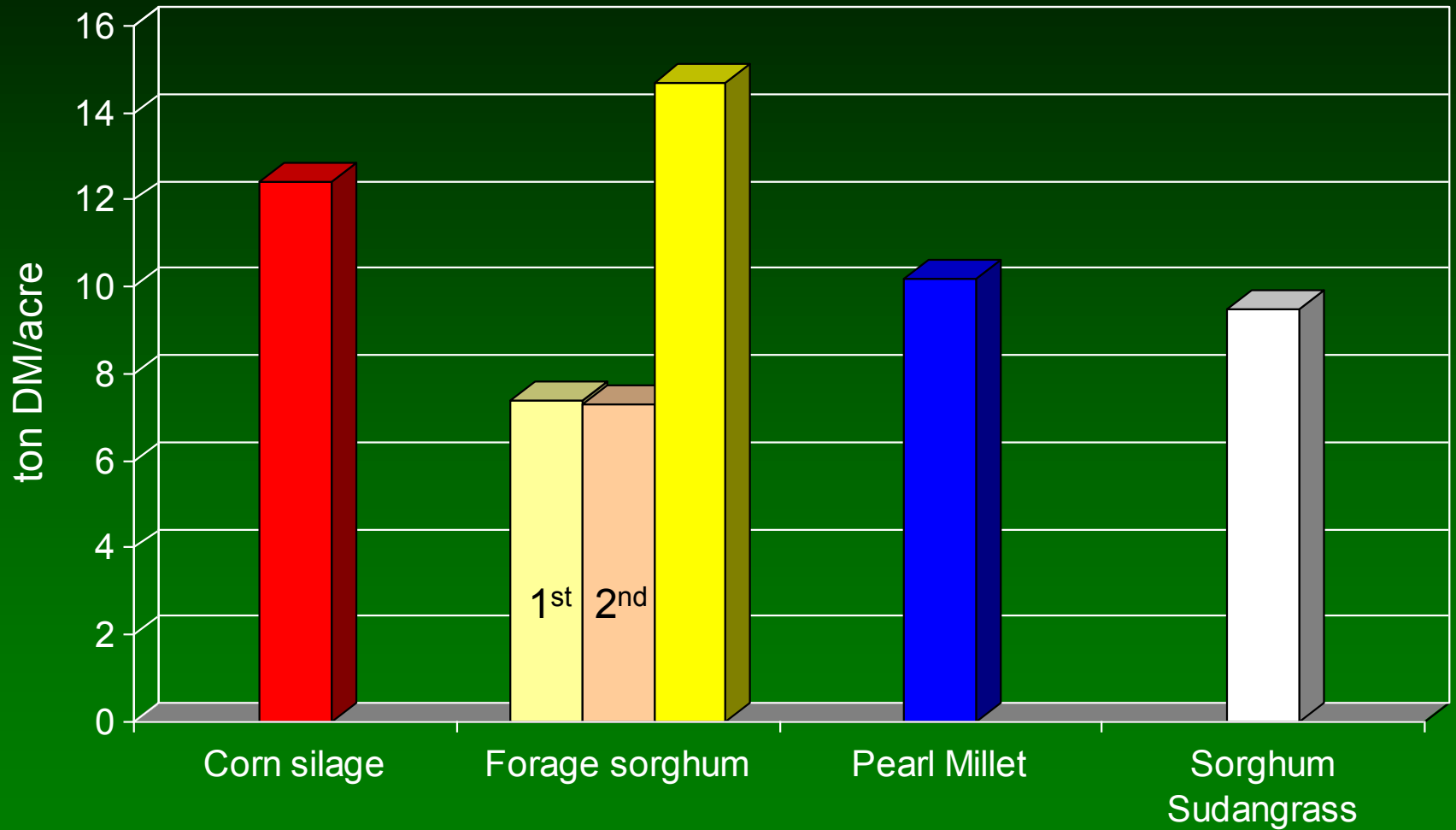
Alternatives to Corn Silage

- ✓ Summer annuals
 - Forage sorghum
 - Sorghum X Sudan grass hybrids
 - Pearl millet
- ✓ Compared to corn, these forages only require 40% less water which make them more drought tolerant.

Summer Annual Forages

- ✓ Forage sorghum
 - Chopped and ensiled
 - Harvest when grain is in dough stage of maturity
- ✓ Sorghum Sudan and Pearl Millet
 - Can be grazed, harvested as hay, or ensiled after wilting as silage or baleage
 - Harvest at 30 to 40 inches
- ✓ Potential problems
 - Nitrate toxicity (sorghum sudan and millet)
 - Prussic acid (forage sorghum and sorghum sudan)

DM Yield



Nutrient Content

	Corn silage	Forage Sorghum	Sorghum x Sudangrass	Pearl Millet
CP	8.1	9.8	8.9	11.3
NDF	42.0	61.0	61.0	67.0
ADL	4.0	4.9	6.1	5.7
NDFD	62.1	48.5	45.5	45.8
NE _L	0.73	0.67	0.67	0.66

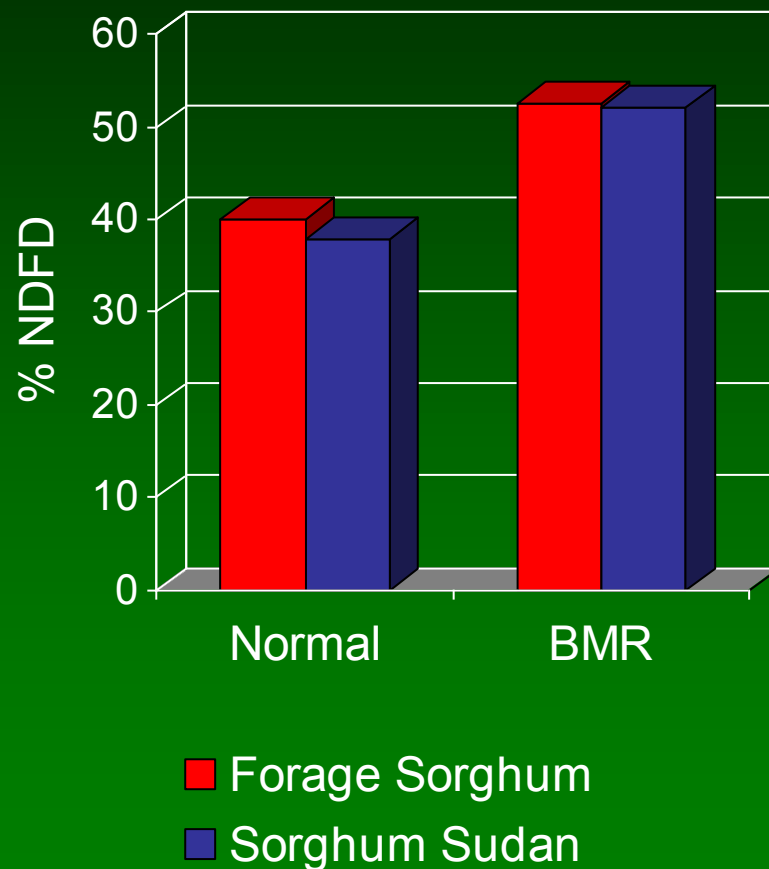
University of Florida Variety Test Data, 2007; Weichenthal et al. 2004.; Univ. of Nebraska; and NRC, 2001.

Forage Sorghum and other Summer Annuals

- Energy value of these forages is roughly 90% of corn silage.
 - Lower concentrations of starch or sugar
 - Lower NDFD compared with forage sorghum
- Brown midrib varieties of forage sorghum and sorghum sudan are available that have improved NDF digestibility and energy content.

BMR Varieties

- ✓ There BMR varieties of forage sorghum and sorghum sudan available have higher NDFD and support similar levels of milk yield as corn silage.
- ✓ **Note:** Lodging can be a problem, especially with forage sorghum.



Feeding Forage Sorghum and other Summer Annuals

Because of their high fiber content and lower energy content, these forages work very well in replacement heifer and dry cow rations



Feeding Forage Sorghum and other Summer Annuals



These forages have been shown to support similar levels of milk yield, but additional energy supplementation is required. Because of the higher fiber content of these forages, milk fat percentage is typically higher.

Ensiling Forage Sorghum and other Summer Annuals

- ✓ Forage sorghum is typically wetter at harvest than corn, but will ferment well. There is normally more seepage because of the higher moisture content at harvest.
- ✓ Sorghum sudan and pearl millet must be wilted before chopping if ensiled to avoid poor fermentation. Because of the extended drying time, it is more difficult to harvest these crops as hay without rain damage. Both work well for green chop.

Summary

- ✓ Forage sorghum, sorghum-sudan and pearl millet require less water than corn silage and can be used for producing forage when water is limited because of drought or water restrictions.
- ✓ The energy content of these forages is approximately 90% of corn silage. They can work well in replacement heifer rations, but will require additional energy for lactation cows.
- ✓ BMR varieties have higher energy content and can support good milk yield, but there is a risk of lodging.

Questions ??

