

Science Of Forage Tests Make Them Important For Several Different Reasons

SPRINGFIELD, MO.

Some producers may think that since they put up their own hay they already know it is high quality. No need to spent \$20 to see if it has 10 percent crude protein and 55 percent total digestible nutrients (TDN) on a dry matter basis.

“We can learn more than how hay looks from a forage test. You can learn what the neutral detergent fiber (NDF) value is and that can be used as an indicator of plant maturity,” said Eldon Cole, a livestock specialist with University of Missouri Extension.

High NDF values indicate more mature plants which can lower intake levels. Grasses have greater amounts of NDF than legumes which can explain different hay's consumption amounts. Cattle appear to vary intake based on NDF levels.

NDF percentages may fall in the 30 percent range for immature legume hay up into the 40's as the legume plants mature. Most of the grasses have NDF values in the 50's and the 60's. Once the NDF reaches 70 percent intake will be reduced.

“The dairy nutrition folks have found a value of 1.2 percent of an animal's body weight is the amount of NDF they'll consume per day. Beef cattle intakes should fall in that range and up to 1.5 percent of their body weight if the hay quality is good,” said Cole.

Using the 1.2 percent value on a 1,200 pound lactating beef cow that is eating good grass-legume hay with 40 percent NDF has an expected intake of 36 pounds per day. (12.00×1.2 percent = 14.4 pounds of NDF and 14.4×40

percent = 36 pounds of intake.)

In contrast, if the hay offered was 68 percent NDF the expected intake would be only 21.2 pounds per day (14.4×68 percent = 21.2 lbs.).

Let's take this one step farther and see how these intakes match the 1,200 pound lactating cow's TDN needs. If she's an average milking cow her TDN needs are 17.6 pounds per day. Our NDF value for good hay would show if she'll eat 36 pounds and if the TDN level is 56 percent her TDN intake per day is 20.2 lbs. (36 lbs. \times 56 percent = 20.2 lbs.)

Now let's see what happens if we feed her a grass hay that has 68 percent NDF and less TDN (53 percent). Remember, her intake based on the NDF levels would be limited to 21.2 pounds of hay. The combination of lower intake and lower TDN levels will have our cow receiving only 11.2 pounds of TDN each day (21.2×53 percent = 11.2 lbs.)

What happens to this cow? Cole says she will lose weight if this feeding level continues very long. If she's a 6 or 7 body condition score cow she'll be able to maintain a decent level of milk for her calf but the worst problem will be an extra long interval from calving to breed back. This delay will result in later calves in 2011 and likely lighter weights that fall at weaning.

“When you test your hay, I'd suggest you pay the extra \$4 or \$5 and get the NDF analysis. It helps you see what the intake should be. In addition, the lab will compute a relative feeding value (RFV) for you. Some folks even use the RFV as a basis for setting the price on hay if you're selling it,” said Cole. Δ

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