GUEST COLUMN

How Do You Enhance Quality with Your Forage?

Randy Hagen, Monsanto

When you think about enhancing your feed products for your animals, what do you consider? What decisions do you make? Finding the right balance is always important and may vary based on the type of animals being fed, what nutrient enhancements you are looking for, as well as maintaining a high yield potential. Quality also has a different meaning to different people. Some farmers want less lignin, others want higher relative feed quality, others want higher protein, and others want higher digestibility.

With different requests, it can be difficult to manage, so farmers need to assess what is most important and then make decisions. Let's assess what each of these areas can offer if the results increase the potential for enhanced quality.

- **Lower Forage Lignin:** Lignin increases tonnage, but reduces the quality of the harvested product. When lower lignin can be achieved, a higher quality product can be produced. Lignin is the structural component of the alfalfa plant holding the plant upright. However, it can also make the plant less digestible for cattle and dairy cows. Reducing lignin content should increase fiber digestibility and change/improve quality as the plant matures, compared to conventional alfalfa at the same stage of maturity.
- **Higher Relative Feed Quality:** There are a couple of measurements and terms to assess feed quality. They are Relative Feed Value (RFV) and Relative Forage Quality (RFQ). Both are indices to rank forages based on combining digestibility and intake potential, calculated from Acid Detergent Fiber (ADF) and Neutral Detergent Fiber (NDF) values. They are representative of forage quality and have been used by forage testing laboratories for many years. RFV uses NDF and ADF as predictors of forage quality. The NDF content is correlated with intake, and ADF is correlated with digestibility. RFV values are relative to a value of 100 which is the indicator of quality that can be equated to alfalfa at full bloom. For example, when alfalfa is at pre-bloom, it would have higher nutritive value with an RFV >100. Values <100 indicate mature alfalfa at post bloom. Some farmers raising or buying alfalfa will use RFV to evaluate or compare alfalfa quality when buying or selling the hay. It provides the producer or buyer with a simple means of comparing the performance potential any given forage has with other available forages. RFQ is used to rank forages by potential intake of digestible matter where 150 is considered dairy quality feed and lower indices are needed for other categories of animals. RFQ can be a better predictor of animal performance than RFV.
- **Higher Digestibility:** When assessing digestibility there are several results that can be used. ADF, NDF, and Neutral Detergent Fiber Digestibility (NDFD) – now based on certain time considerations such as NDFD24, NDFD30, NDFD48 – are all being used to help determine digestibility results. These analyses help display the percentage of the NDF digested by animals at a specified level of feed intake. NDFD is inversely related to animal intake and the energy an animal can derive from a forage. This value can be used to rank alfalfa forages on potential fiber digestibility and in energy calculations.
- **Higher Protein:** Increasing protein is more management than it is product selection, although doing both can enhance the result. Crude Protein (CP) is an indicator of the protein content in the forage which is a mixture of true protein and non-protein nitrogen. CP content indicates the capacity of the feed to meet an animal's protein needs. Typical CP content in alfalfa is in the range of 18-25%. Alfalfa cut early or with a high percentage of leaves has a high CP content. Animals meet protein needs by breaking down plant and microbial (from the rumen) protein and reassembling it as animal protein. Other protein terms include Rumen Digestible Protein (RDP), which is that portion of total protein degraded in the rumen, and Rumen Undegraded Protein (RUP), which is the portion of the protein not degraded in the rumen.
- **Yield:** To make sure you get the most yield possible along with the quality you need, it is very important to maintain general management considerations: cutting at the right time, managing insects and diseases, managing weeds, and managing feed needs. Would increases of 25% higher yields, 14-18% higher digestibility, 14-18% higher relative feed quality, and 16-20% lower lignin help you meet your needs? If so, there are products available on the market to help you reach those numbers.

There are tools available to help you with assessing your needs as well as giving you information. You can access on-farm feeding data to help assess products you have planted and are harvesting. Calculators can help assess value and trait advantages to determine if the product will meet your needs. Working with a feed nutritionist or your local seed agronomist can also help you analyze products which include the required qualities you are looking for and still maintain a strong agronomic product that will boost your yield.