



by John Goeser

# Tipping points to a great forage plan

**A**T THE Florida Ruminant Nutrition Symposium in February, I flew down and talked about innovative forage management and quality ideas. Forage quality is overly vague, so we broke the talk down into several categories to simplify and categorize new ideas as detailed below.

Ahead of covering these areas, let's not forget that corn silage alone accounts for roughly \$250,000 in feed costs per year for every 500 cows. As we approach the 2025 growing season, understand that the total feed cost nested in both corn silage and alfalfa hay or haylage eclipses \$400,000 per 500 cows. This is a staggering expense with continued room to improve and optimize.

### A TDN mindset

Milk per ton centers upon corn silage's energy value. While milk per ton and milk per acre can be useful benchmarks on forage analyses, when I'm in the room with agronomists, nutritionists, and producers, we tend to use a total digestible nutrient (TDN) mindset. The road to energy passes through TDN; and I prefer this index for a few reasons. First, TDN accounts for all the nutrients in forage — namely, protein, starch, sugar, fiber, and fat. Next, TDN uses individual nutrient digestibility measures alongside nutrients. For example, if a forage is 40% fiber and the total tract fiber digestibility is 50%, then the digestible fiber is  $40\% \times 50\% = 20\%$  on a dry matter basis.

The same holds true for the other nutrients. We sum up all the digestible nutrients into a single number to evaluate hybrids and compare alternative forages to corn. We can calculate the cost per ton in forage TDN using crop production cost per acre and yield. With this TDN cost in mind, we've even compared silage

or haylage to commodities like soy hulls, almond hulls, or gluten feed in a FeedVal-like approach. I also love this approach to compare agronomic or harvest management practices in our on-farm research efforts.

### Particle size

While nutrients and digestibility provide the foundation for forage quality, particle size interacts with TDN and energy value. The right or wrong particle size for fiber and grain can optimize or destroy the forage feeding potential. Particle size is also under our managerial control. While this forage quality metric is not subject to Mother Nature's impact, particle size can be adjusted as the growing season plays out. With drought conditions, fiber digestibility dramatically increases and particle size should be lengthened out. Alternatively, with years like many experienced in 2024 and when fiber digestibility is challenged, we can shorten the chop length to improve feeding efficiency.

On the grain side with corn or sorghum silage, kernel and berry processing should always be maximized. Sure, at some point diesel consumption and harvester speed will be hindered as the kernel or berry processor roles are cranked down, but a majority of samples I see show room for improvement.

Note that I'm introducing a berry processing concept, which may read as new to you. Jared Johnson, Mike Brouk, and I collaborated on a berry processing score (BPS) with Johnson's research at Kansas State University back in 2016. We anticipated at some point there would be better BPS options, and now, thanks to new berry processors being available for harvesters, we're seeing it. There are a couple of commercially available berry processor options showing promise to achieve berry



processing scores above the 50% goal. The concept behind BPS is similar to kernel processing score, and the long standing KPS goal holds steady at 75% or greater.

### Feed hygiene

Feed contaminants can undo all of our hard work put forth in optimizing feed energy potential and particle size. I've lost track of how many times I've been brought in to talk about feed hygiene issues wrecking forage with good feeding potential. This topic stands on its own. We've covered it extensively in the past and will do so going ahead, but we have to include hygiene assessment in our forage quality strategy meetings.

The renewed focus for 2025 is optimizing plant health. We can't control the environment but we can aim to prevent a situation where plant disease takes hold. Thanks to the University of Wisconsin's Damon Smith and other leading plant pathologists, we know certain fungicides can lower disease and mycotoxin levels in forage.

In addition to crop scouting, preventing physical damage due to insects or other disease will always equate to cleaner forage. New con-

versations about insect damage are coming about down South, while tar spot and other diseases have been on our radar now for around five years in the North.

While seed selection decisions were made long ago, we're also emphasizing plant disease resistance rooted in genetics as a major crop protection strategy just like we use the Bt trait to convey pest resistance in corn. Beyond hygiene, forward-thinking producers continue to take more ownership of seed evaluation with on farm trials and plots.

Pivoting back to the nearly half-million dollar opportunity introduced above, grab hold of a new point or two that we're covering here. Make the most of your forage feed costs by unlocking the full feeding potential rooted in your silage, hay, or haylage. 🐮

The author is the animal nutrition director at Rock River Lab Inc., in Watertown, Wis., an adjunct professor at the University of Wisconsin-Madison, and a consultant with Cows Agree Consulting LLC.

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