Forage and Feed Sampling & Testing: A Practical Guide

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Testing your forage and feed is one of the most valuable steps you can take to make sure your cattle are meeting their nutritional needs. By collecting good samples, choosing the right tests, and understanding the results, you can save money, improve animal performance, and avoid unexpected problems.

Getting a Good Sample

The first step is making sure your sample represents what the cattle will eat. Always sample by "lot," meaning hay or forage that comes from the same field and cutting. Never mix bales from different cuttings or pastures into one sample. Also consider timing, sampling right before feeding shows the most accurate nutrient value since it includes any storage losses. Use a hay probe or core sampler when possible and collect at least 20 cores from different bales in a lot. For chopped silage or baleage, take grab samples from several locations and mix them. Once collected, combine samples in a clean bucket, mix thoroughly, and seal in a heavy-duty plastic bag. For high moisture feed, freeze the sample until it's shipped to the lab.

Labeling and Shipping

Clear records are just as important as a good sample. Label each bag with your name, lot ID, harvest date, and forage type (i.e. "2nd cutting orchard grass, Field A"). On the lab paperwork, note any details about maturity, legume content, or suspected issues like mold. Ship samples quickly, preferably early in the week. Use ice packs or freeze high moisture feeds like silage to keep it from spoiling.

Choosing a Lab and Tests

When looking for a place to send samples, look for an accredited lab certified by the National Forage Testing Association (NFTA). Most routine analyses are done with Near-Infrared Reflectance Spectroscopy (NIRS), which is fast and affordable, but the "gold standard" for feed analysis is wet chemistry and can be more accurate for some feed types. At minimum, request tests for dry matter (DM), crude protein (CP), acid detergent fiber (ADF), and neutral detergent fiber (NDF). These values allow the lab to also calculate energy, like TDN. Optional tests like nitrates, minerals, or fiber digestibility are worth considering if you suspect specific issues or are feeding high-risk forages like sorghum or drought-stressed hay.

Understanding the Results

Dry Matter (DM): Indicates how much actual feed remains after water is removed. Essential for balancing rations and preventing spoilage.

Crude Protein (CP): Estimates protein content but can include non-protein nitrogen (like nitrates). Heat-damaged hay may show inflated CP, so some labs also report available CP.

ADF and NDF: Fiber values that affect digestibility and intake. High ADF means lower energy; high NDF limits how much cattle will eat.

Energy (TDN, NE): Energy values calculated from fiber. As ADF increases, energy drops. Meeting cows' energy needs is often the biggest feeding challenge.

Ash and Minerals: High ash often means dirt contamination, which dilutes feed value. Mineral panels can flag shortages or imbalances that may require supplementation.

Putting Results to Work

The real value of forage testing comes when you compare lab results to your cattle's requirements. For example, if a cow needs 1.4 pounds of protein daily but your hay only provides 0.9 pounds, you know to add a protein supplement. Conversely, if your hay is richer than expected, you can save money by cutting back on purchased feed. Matching different forages to the right class of cattle is also smart management. Reserve your highest quality hay for lactating or growing animals, while dry mature cows might be able to get by on lower-quality forage.

Avoiding Common Mistakes

The biggest pitfalls are poor sampling (too few cores or mixing lots), mislabeling bags, and misreading results (confusing "as-fed" with "dry matter" values). Don't rely only on RFV or CP without considering energy, fiber, and minerals. And always ship samples quickly to avoid spoilage.

The Bottom Line

Good sampling and testing take a little time but can help improve operation efficiency. By knowing exactly what nutrients your forage provides, you can fine-tune rations, avoid toxicity risks, and stretch your feed dollars further. Forage analysis is a simple but powerful tool to boost both cattle performance and your bottom line.

I strongly recommend all producers test their forages, especially this year, due to late harvest times with how wet the majority of the Southwind District was during prime harvest time for forages. Forage quality IS down this year, even though hay meadows produced more this year. I can assist you with testing and choosing packages, along with shipping them to the lab.

Thank you to Emma Briggs, NW KS Beef Systems specialist for the content in this article. As always, if you have any questions give me a shout at any of the Southwind District offices or email nickell99@ksu.edu