

‘As Sampled’ Vs ‘Dry Matter’ Basis

‘As Sampled’ refers to the nutrient results for the entire sample, including both moisture and dry matter. Another way to think of this, is “As Sampled” is what you are actually feeding in its entirety. ‘Dry Matter’ is the nutrient results for just the dry matter portion (no water) of the sample.

Crude Protein (CP)

Crude protein is the total protein in the sample. For the average horse in moderate work, **10-14% protein (as sampled)** is generally recommended.

Neutral Detergent Fiber (NDF) vs Acid Detergent Fiber (ADF)

Neutral Detergent Fiber (NDF) measures hemicellulose, cellulose, and lignin (the fibrous bulk of the forage). NDF should generally be between **40-50%**. As a rule of thumb, it’s commonly said that the higher the NDF, the less palatable the hay.

Acid Detergent Fiber (ADF) measures cellulose and lignin only. ADF should generally be between **30-40%**. The lower the ADF, the more digestible the feed.

Crude Fiber (CF)

Crude Fiber is an old method of fiber analysis, and not the most accurate measurement for fiber, particularly for forages, so we don’t use this figure when looking at hay tests.

ESC + Starch

The most important for IR/EMS Horses

If you have an IR horse, this is the number you’ve been waiting for!

When looking at the carbs on a hay test, the first thing to look at is the Ethanol Soluble Carbohydrates (ESC) and Starch. If you have a horse with metabolic challenges like Insulin Resistance or Equine Metabolic Syndrome, add the measure of ESC to the measure of Starch. These are the two carbohydrates that cause glucose spikes and increased insulin levels.

“Good” is a total of less than 10%.

ESC + Starch < 10%

Remember that generally, the higher the starch, the higher the energy content in the hay. But starch converts 100% to glucose, so for horses with metabolic issues (IR/EMS), the lower the starch, the better.

You may have heard about another measure, Non-structural Carbohydrates (NSC). This is an old term, and was used to describe the total of Water Soluble Carbohydrates (WSC) and Starch. As with all health discussions, there are conflicting arguments as to which numbers should be used to analyze hay for metabolic horses.

Water Soluble Carbohydrates (WSC) are the carbohydrates solubilized and extracted in water. WSCs include the ESCs. The difference between the ESCs and NSCs is mostly fructans, which are not often considered to affect insulin levels in EMS/IR horses.

Digestible Energy (DE)

Digestible Energy is the energy that is digested and absorbed. The higher the energy output of the horse, the higher the DE should be. Feeds with higher DE are often associated with horses becoming “hot.”

Relative Feed Value (RFV)

Relative Feed Value is a way of measuring forages based on digestibility and intake potential. An average RFV is **100**. The higher the RFV, the better the quality.

Nitrates (NO₃)

Nitrates can become a problem when fed in high amounts. **This is not included in hay analysis packages but is a great add-on for the additional cost.**