

uNDF240

What is uNDF240?

uNDF stands for undigested neutral detergent fiber (uNDF). NDF, commonly referred to as “cell wall,” is comprised of cellulose, hemicellulose, and lignin. The number “240” refers to the amount of NDF remaining undigested after 10 days (240 hours) in the rumen. The most common technique to determine uNDF is by *in situ* or *in vitro* incubation; once enough data is obtained, either technique can be used to create a calibration, or prediction, using NIR.

uNDF is a problem because it's NDF that can't be fermented to end products -- VFA -- that are used to make milk and milk components. And, once ingested by the cow, uNDF may take up space, creating too much rumen fill if rates of breakdown are too slow. The result: less milk and/or lower dry matter intake. The relationship of uNDF to milk components is still unclear. uNDF is somewhat correlated to rumen pH, so at least milk fat synthesis might be affected. Worth saying is that not all uNDF is bad. uNDF initiates matting and should help rumination.

What impacts uNDF?

uNDF is determined by environment and genetics. In other words, growing conditions play a large role in the formation of the undigested fraction (uNDF). For example, 2017 corn silage has roughly 10%-units more uNDF than 2016 silage. The cool, wet conditions during early growth stages likely contributed to higher uNDF in 2017 corn silage plants. Genetics is a factor as well. BMR hybrids tend to have significantly lower uNDF than conventional hybrids. Forage uNDF240 values are determined by genetics and environment. Tile drainage should improve (lower) uNDF240 content of forages. Flood irrigation may increase uNDF240 content.

Why is uNDF relevant?

A growing body of literature and field experience tells us that uNDF affects cow performance negatively. The mechanism is still unclear. For sure, the most widely observed result is less milk. And, it's not always linked to lower feed intake.

One key element to uNDF is the digestibility of the NDF that *is* available for digestion. In other words, what is the digestibility of the NDF at time points leading up to uNDF? This year, we reported digestibility of NDF at 30, 120, and 240h. These time points can be used to determine the *kinetics, or rate,* of NDF digestion. Combining rate and extent of digestion with uNDF should help us reconcile cow performance.

Bottom Line:

uNDF is not a new nutrient or measure. Researchers and nutritionists have been talking about uNDF for the past 20 years. Recently, though, experiments and models are “connecting the dots” linking uNDF to yield of milk and intake of feed. In the end, we think uNDF serves as another nutrient to fine-tune rations for dairy cows.