



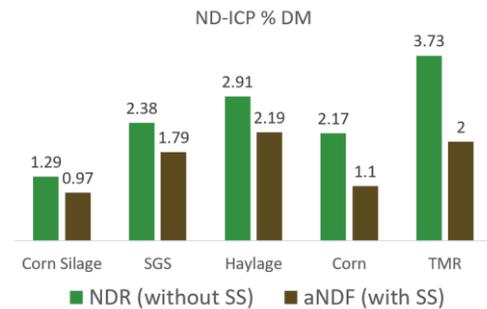
Neutral Detergent Fiber Analysis & Methods Progress through the Years

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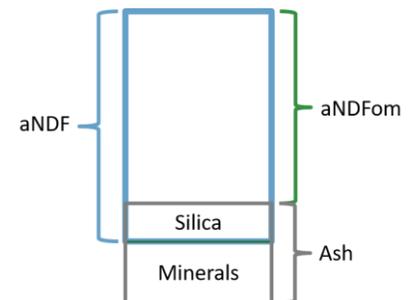
NDF (Neutral Detergent Fiber) analysis was originally introduced to feed and forage testing in the 1960s. The rationale was that the Neutral Detergent Residue would describe the total fiber content of feeds and forages - including hemicellulose, cellulose, and lignin. The reagents used in this procedure were used with the intention of washing out protein, fat, starch, sugar, pectin, etc., but leave the fibrous material behind.

A significant change to the method came about in the 1990s. The acronym NDF changed to aNDF, which signified the additions of amylase and sodium sulfite to the Neutral Detergent procedure. Amylase was added to remove potential starch contamination. This addition had the most impact on forages containing significant starch levels, like corn silage and sorghum silage, which increased chances for artificial elevation of NDF levels prior to the addition of the amylase.

Sodium Sulfite was added to reduce protein contamination of the NDF. This addition had more impact on forages with higher protein levels such as hay crop forages (alfalfa, clover, grasses, small grain silages, etc.) The most noticeable change after utilizing sodium sulfite was a reduction in the spread between aNDF and ADF values, since aNDF was reduced in many cases, especially on higher protein forages.



The next significant change to the NDF method came in the early 2000s. The acronym aNDFom was introduced, with the “om” meaning organic matter basis or ash-free basis. This change was to correct for potential ash contamination of the NDF. After the aNDF procedure, the sample goes through an “ashing” process, which burns off all organic matter leaving only the ash contents. A larger spread between aNDF and aNDFom would indicate that particular sample has significant silica/soil contamination. Typically, hay crop forages would tend to have more differences between aNDF and aNDFom with this potential for soil contamination.



From this short timeline, you can see how important it is to stay informed of the latest nutrient analysis terms and values. Dairyland continues to utilize the best methods of feed and forage analysis. As research moves forward and reveals an improvement to the method, we offer additional values for customers to use in their ration formulations. Please contact us with any questions in regards to lab methods and analysis.