

12hr NDFD

Differentiating the highest quality alfalfa and grass samples

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DAIRYLAND

Laboratories, Inc.

Enough with the NDFD time points already, right? The information across all the time points within a sample or feed type can be highly redundant (Have you ever seen a sample with high NDFD120 but low NDFD240?). Generally, the dairy industry started with time points that approximated rumen retention time (48, 30, or 24 depending on the system and target animal). Then we added long time points to cleanly define the portion of fiber that is indigestible (72, 120, 240). So why would we now want to add a 12hr time point to forages?

The shortest version of this story is that the highest quality grass and alfalfa samples digest so fast that the 30-hour time point doesn't fully differentiate them. Over 90% of the potentially digestible NDF in high quality alfalfa is digested prior to 30 hours. Besides making it difficult to differentiate samples when looking at the raw NDFD values, it also makes it difficult to calculate stable digestion rates. (Digestion rates only apply to the potentially digestible NDF, but more than 90% of it is already gone when a 30- or 48-hour measurement is made).

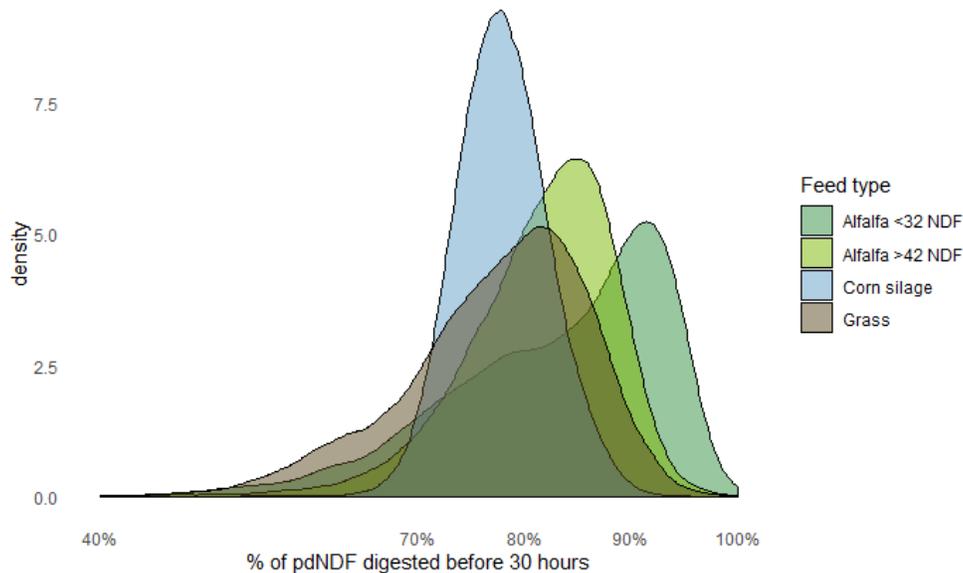


Figure 1 - More than 90% of fiber digestion happens prior to 30 hours in high quality alfalfa and grass. Data source: Dairyland Laboratories Inc. NIR

For mid and low-quality alfalfa and grass, this 12hr time point has little utility because these feeds are slow enough that traditional time points are adequate. Corn silage also has little to gain from a 12hr time point.

To our knowledge, no commercial diet formulation program currently utilizes the 12hr time point for forages. It is utilized for non-forage fiber sources within some implementations of CNCPS 6.5+ and some programs will let the user input a 12hr forage value, but do not actually use the parameter in any internal calculations. In other words, in the short term NDFD12 is just a way to qualitatively differentiate the highest quality grass and alfalfa samples. By including it in our CNCPS NIR packages, it is our hope that customers will be able to identify the digestibility

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differences and the accumulation of measurements on large sets of samples will assist developers in incorporating it into future formulation programs.

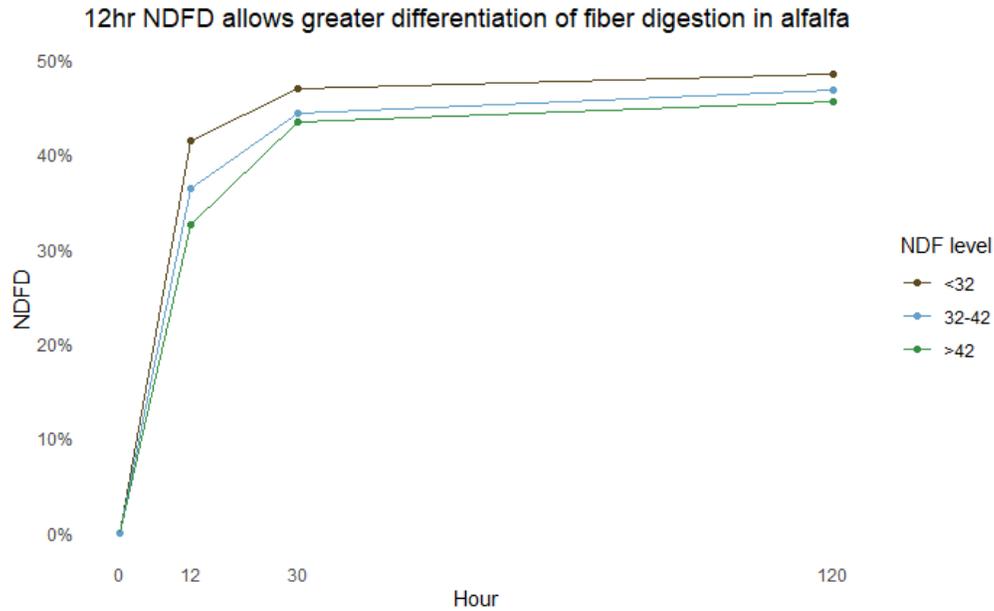


Figure 2 Median NDFD in alfalfa across 3 levels of quality. Data source: Dairyland Laboratories Inc. NIR

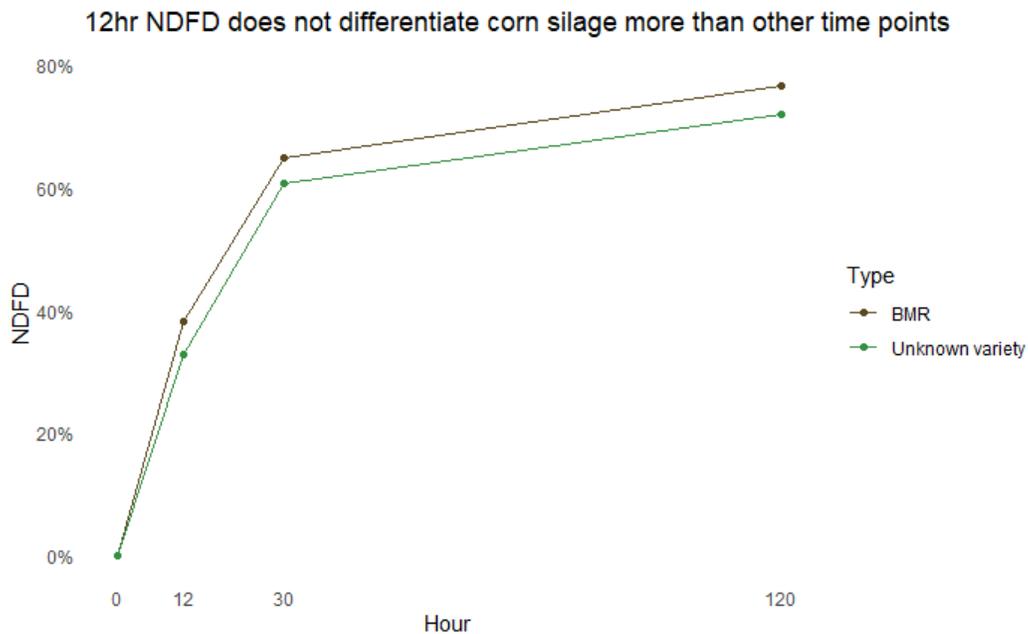


Figure 3 - Median NDFD in BMR and unknown varieties of corn silage. Data source: Dairyland Laboratories Inc. NIR