



Dairy One

Forage Laboratory

May 2015 Newsletter

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What do the new digestibility numbers look like?

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In the last newsletter, I talked about what we have seen on samples that were analyzed using the new adjustment for ash in NDF (aNDFom) and the three new digestibility time points. The new time points are 30h, 120h, and 240h and are used in the new version of the Cornell Net Carbohydrate and Protein System (CNCPS 6.5). Previously, rates were calculated using a single time point and estimating the undigestible NDF as (lignin x 2.4). In version 6.5, rates are calculated using multiple time points (30, 120 & 240hr) and the undigestible NDF determined as uNDFom240.

In the first month of availability of the new digestibility time points and our Forage NIR Pro package, we have analyzed more than 2,600 samples of corn silage, legume haylage and grass haylage.

Table 1. New digestibilities and comparison of constants for uNDFom240 and Lignin x 2.4 from the Dairy One Forage Lab (February 2015).

	uNDFom30 (% DM)	uNDFom120 (% DM)	uNDFom240 (% DM)	Lignin x 2.4	Calc. Constant*
Corn Silage					
N	1171	1171	1171	1171	1171
Mean	19.92	11.13	8.72	7.57	2.78
SD (±)	4.25	2.86	2.51	1.66	0.58
Min	7.22	3.34	2.06	2.64	0.95
Max	52.07	28.70	25.52	17.33	5.19
Legume Silage					
N	419	419	419	419	419
Mean	22.21	20.50	17.64	17.31	2.45
SD (±)	4.38	4.23	4.00	3.15	0.40
Min	9.22	8.40	5.52	6.70	1.29
Max	37.98	35.89	31.67	28.49	4.51
Grass Silage					
N	1083	1083	1083	1083	1083
Mean	25.47	21.12	15.51	14.30	2.68
SD (±)	7.84	6.19	5.17	3.97	0.84
Min	5.18	3.75	2.30	4.56	1.02
Max	69.71	50.29	44.75	30.00	7.22

*Calculated constant is uNDFom240/lignin.

The 2.4 constant in lignin x 2.4 was developed to determine indigestible NDF and is close to what we saw on average when we calculated the constant for the legume silage samples. The corn silage and grass silage constants were slightly higher than the 2.4 constant. Overall, the calculated constants for 95% of the samples for corn silage were between 1.62 and 3.94, 1.65 and 3.25 for legume silage, and 1.00 and 4.36 for grass silage. The legume silage has the least variability in the calculated constant and the grass silage had the most. This change is important because uNDFom240 is related to rumen fill, dry matter intake, and rate of passage, making the use of the new digestibility's more accurate for most samples than the use of lignin x 2.4.

Digestibility Rates

In all 3 sample types, the majority of fiber digestion occurred in the first 30 hours. Corn silage (Figure 1) continued to have more fiber digested between 30h and 120h and 120h and 240h. Corn silage also had the least amount of variation across the 3 time points (Figure 1). The legume (Figure 2) and grass silages (Figure 3) had reduced fiber digestion at later time points. Grass silages had the most variability across the 3 time points (Figure 3). The larger variation in the legume and grass silages is likely related to the species make-up of the sample, maturity at harvest, dry matter at harvest, and cutting number. Further data and research to determine how we can manipulate rate of digestion and uNDFom240 is needed. Additionally, some studies have shown that intake is related to the uNDF240om level of the diet. With more research, we may be able to manage inventory based on uNDFom240 in the future.

Figure 1.

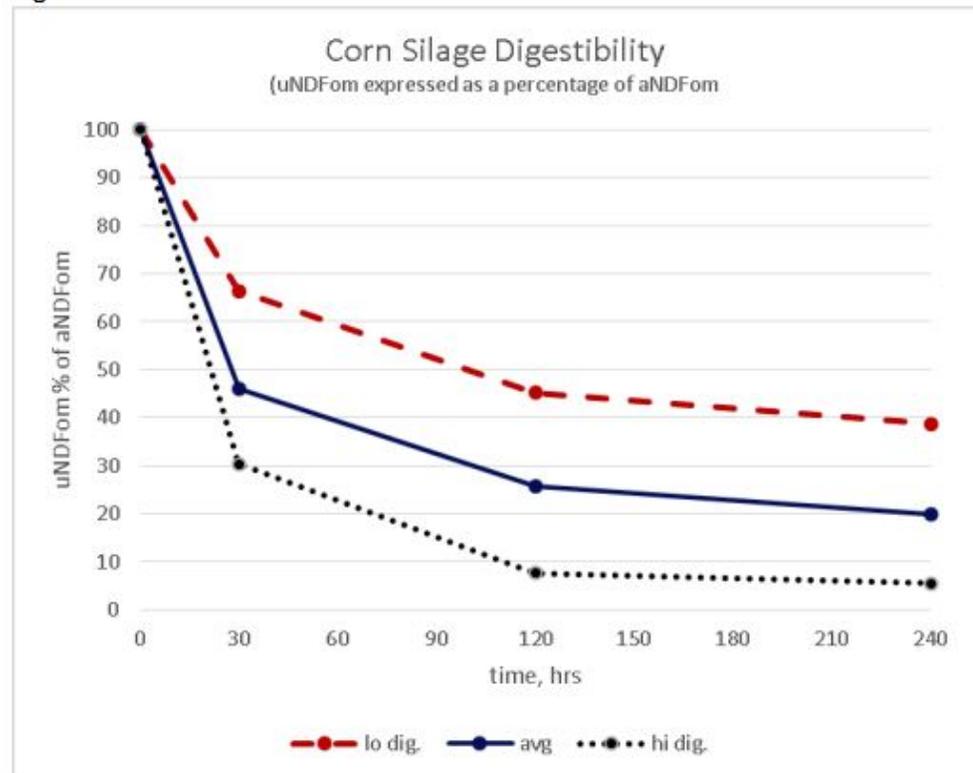


Figure 2.

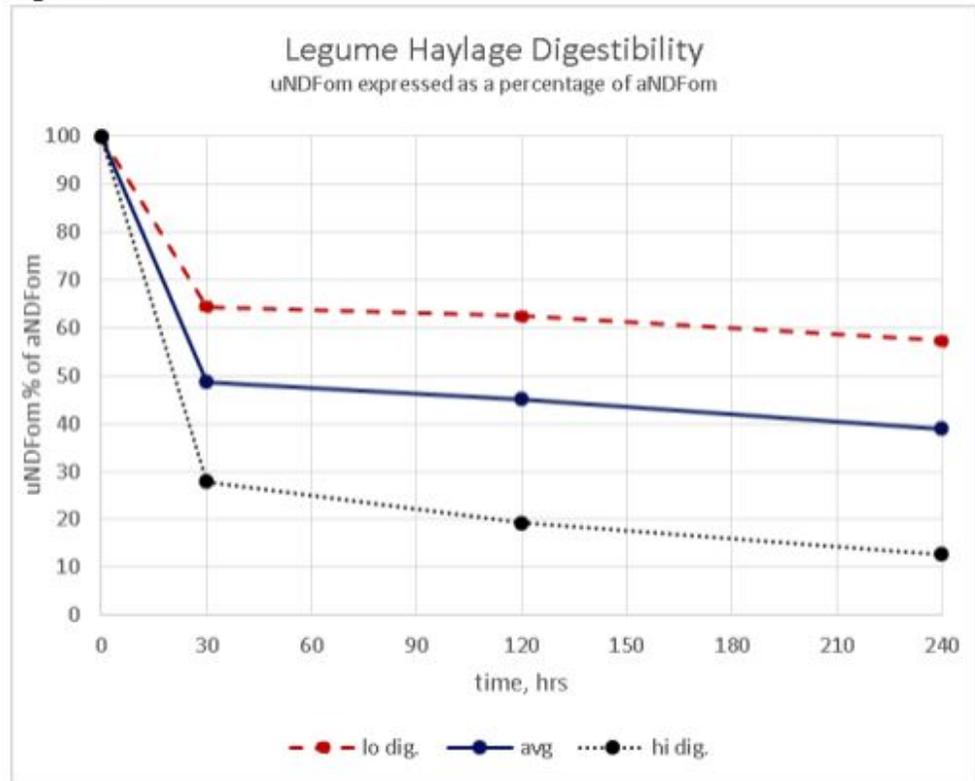
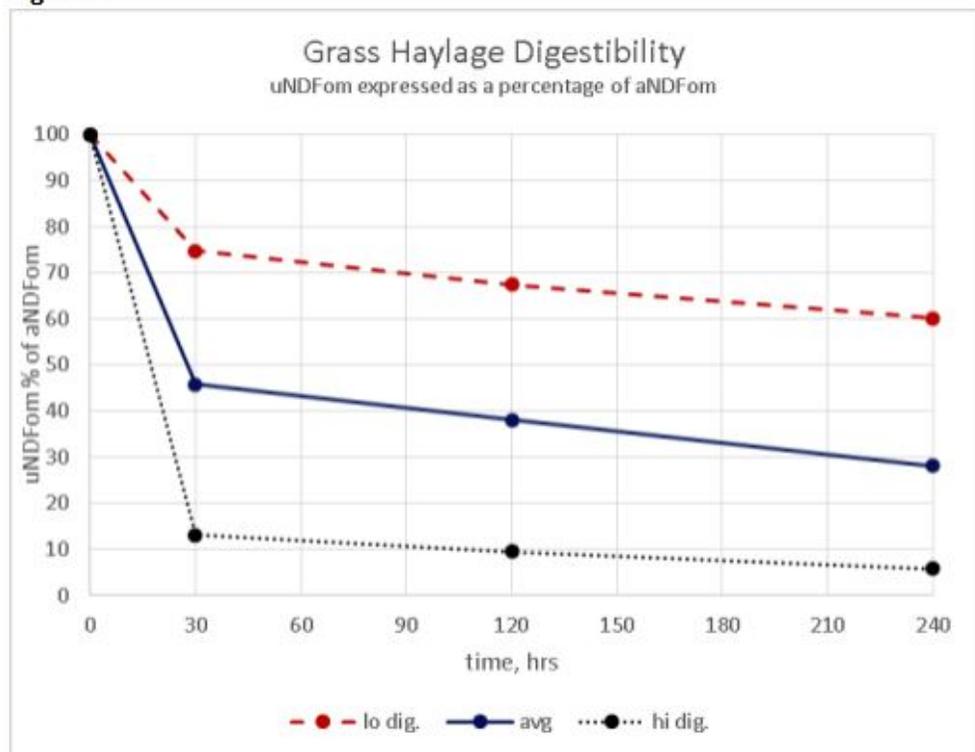


Figure 3.



The NIR Pro package that includes the aNDFom and all the new digestibility numbers is available for \$25.00. Contact foragelab@dairyone.com for more information.

Introducing the Dairy One Summer 2015 Measurement to Management Farm Tour!

Plan now to visit a site near you and see how Dairy One services make a difference for members. What does it mean to "Measure it so you can manage it"? We will show you how the following areas of our business do just that on real farms and get real results.

- DHIA Records Services
- Forage Laboratory
- Agro One Soils Laboratory
- Animal Health Diagnostic Laboratory
- Agricultural Management Resources
- Agricultural Consulting Services

Dairy One staff are excited to be working with 6 member farms this summer and will be available at each site. We will spend the morning touring the farm facility and addressing just how we measure it so you can manage it. This is a new event for Dairy One and we look forward to seeing you there!

Visit the [website](#) for information on the host farms and how to sign up?

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