

NIRS Forage and Feed Testing Consortium

“Dedicated to increasing the accuracy and knowledge of NIRS testing.”

NIRS Consortium Membership NEWS

December, 2002

NIRS Consortium Annual Conference To Be Held February 20th-21st, 2003 in Madison, WI

The Consortium annual conference will be held on Thursday and Friday, February 20-21, 2003. February 20th from 8:00am to noon will be training sessions held in the computer facility at the Pyle Center on the University of Wisconsin campus. In the afternoon, discussions and presentations will be held at the US Dairy Forage Research Center. Following this will be social time and dinner. The following day, February 21st, will be dedicated to Consortium discussions and business. We expect adjournment to be noon or 1:00pm on the 21st.

Topics for the training sessions include some review of the basics as well as “Local for Beginners”, and advanced discussion and hands-on practice of implementing a Local database.

Topics for the presentation/discussion sessions include oven versus microwave drying, utility of starch measurements, industry usage of starch measurements, techniques in measuring starch /categorizing NFCs & starch degradability.

Topics for the Consortium discussions include development of a starch equation, implementing a Consortium Local database, updating and reorganizing Consortium equations including moving to 5000 spectra and

combining/packaging equations, and a Consortium business summary.

NIRS Forage and Feed Testing Consortium Has Obtained Exempt Status

For approximately the last year, we have been

Updates on Equations

- Susan Selman

I have been working on updating the 4500 equations to 5000 equations. Things are looking very good. I am hoping to release the 5000 equations in January. These equations will have Ash, dNDF, NDFD, RFQ all rolled into the basic equation package. The equations will have to be monitored by the NFTA samples. I’m checking out how well the equations perform on the previous NFTA samples.

These 5000 equations can be a transition into the local database we are hoping to move toward in the near future. As the local database is built, we will be able to get away from the multiple equations we use today. This will eventually be a simpler system and eliminate the need to run spectra through more than one equation to get multiple outputs. For example, some labs are now running spectra through one equation to get typical

constituents like DM, CP, ADF, NDF, and minerals, while running through a second equation to get dNDF and IVTDMD. The database will be more robust *and* have a greater accuracy compared to global equations, in which we can expand and increase robustness, but accuracy often suffers.

Thanks to the labs for submitting spectrally different samples and drought samples for the current update! **If any lab has spectrally different corn silage samples or other samples that are spectrally different for dNDF, please submit spectra and samples for update.**

Remember to send in cal files (spectra and chemistry) to help update the local database.

Effect of Drying Method on IVDM and NDFD

- Dan Undersander
Aug 1, 2002

This summary reports the results of two studies examining the effect of drying method on In vitro digestible dry matter and neutral detergent fiber digestibility.

Background: A previous study by Pat Hoffman and Dairyland Laboratories reported that Rumen Undegraded Protein (RUP) was changed variably by microwave drying. It was thought that the changes were due to hot spots created while drying in a microwave oven. Due to the unpredictability of the change, they recommended that RUP be run only on oven-dried samples to avoid changing the RUP during the drying process. From this we suggested the possibility that microwave drying

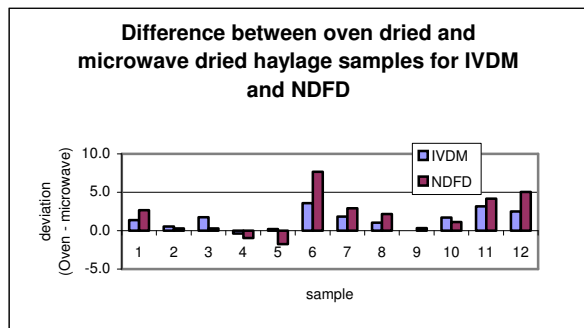
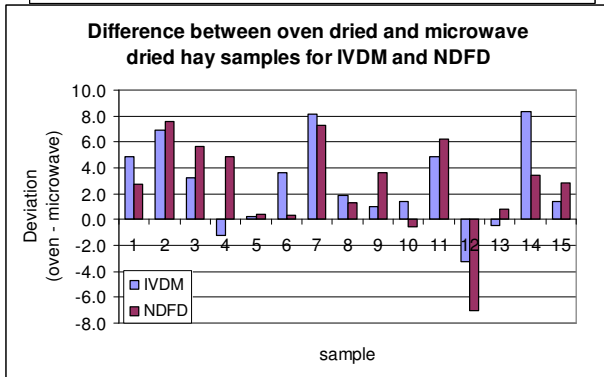
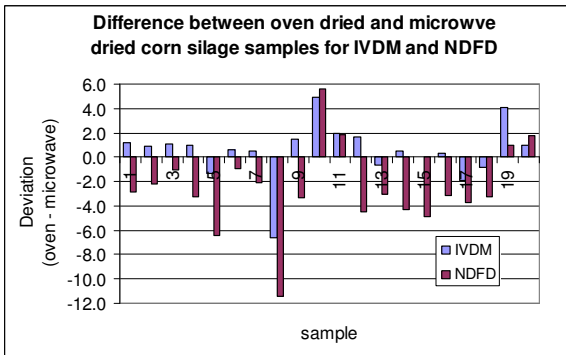
may cause the same situation with in vitro or in situ digestibility determinations.

Studies: Two studies were conducted: one on hay and haylage (primarily alfalfa) and one on corn silage. The hay and haylage study consisted of a number of samples split and dried by the two methods by three different laboratories during the spring of 2002. Samples were dried at either 55 C in an oven over night or microwave dried according to their standard methodologies (usually to 8 to 10% moisture). The study consisted of 30 pairs of samples. The second study consisted of 20 of fermented corn silage samples randomly selected from a group of 60 that were received from Pioneer Hybrid Intl in the spring of 2002. Patty Laskowski split the samples and oven dried half at 55 C and microwave dried the remainder to approximately 10% moisture. All samples from both studies analyzed for IVDM and NDFD by UW-Marshfield Soil and Forage Testing Laboratory. Results presented are wet chemistry determinations of the two analytes.

Results: Results are shown in the table and graphs below. Microwave drying generally decreased IVDM for all forage types. Microwave drying also decreased the average NDFD of hay and haylage while it increased NDFD in corn silage. The major concerns are that change within each product was variable and that IVDM and NDFD did not change consistently with each other. Therefore differences cannot be accounted for with bias adjustments. The recommendation is that NIR for all biological assays (IVDM, NDFD, dNDF, and RUP) be done only on oven dried forage.

Average change in digestibility due to microwave drying from three laboratories

Product	IVDM	NDFD	dNDF
haylage	1.44	1.99	0.36
hay	1.36	2.84	0.01
corn silage	0.50	-2.50	-3.08



Comparison of RFV and RFQ

Spectra Collection for Equation Updates

Labs should collect any spectra that does not fit current equations. Collect spectra for 3 to 4 weeks or until a good file is formed. After this, send the spectra to Susan, after which she will review the spectra and determine which spectra require the sample to be sent to Susan (and chemistry if available). It is expected that this process from time of the lab sending in spectra to Susan slselman@facstaff.wisc.edu (ph:608-264-5232) selecting the samples and replying to the lab should not take more than 10 days. Especially with the drought in the Dakotas, Nebraska, and Kansas, these samples might be good to keep for equation updates. Some labs have already submitted spectra. Keep up the good work!

Forage Check Cells- Reminder

Most labs have sent an old soybean check cell in to Susan for repacking and have received their new Consortium Forage Check Cell. If you haven't had your equation checked, please follow the directions Susan sent with your new forage check cell equation. Then send in your chk and eqa files to Susan. Most equations need adjustments to fit each lab's NIRS instrument.

For further information on any of these topics,
please contact Patty Laskowski.

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