

NIRS Consortium Membership NEWS

Sept./Oct./Nov., 2002

NIRS Forage and Feed Testing Consortium Has Obtained Exempt Status

For approximately the last year, we have been working with the IRS to get tax exempt status. As of October 3, 2002 the NIRS Consortium received a determination letter from the IRS that places us under section 501(c)(6) of the Internal Revenue Code, with tax exempt status.

Under section 501(c)(6) of the code, we are organized as a Business Association. This means that our organization has these characteristics:

1. no part of net earnings benefit an individual
2. not organized for profit
3. does not engage in activities ordinarily carried on for profit
4. primarily supported by membership dues and other activities related to exempt purpose
5. exempt purpose is to increase the accuracy and knowledge of NIRS testing of forages and feeds
 - improves business conditions for all forage and feed testing industry by promoting accuracy through uniformity, standardization, and good practices
6. contributions to organization are not

deductible as charitable contributions on the donor's federal income tax return (can be deducted as trade or business expenses if ordinary and necessary in the conduct of the taxpayer's business)

6. our IRS EIN # is: 41-1944585

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 am checking out how well the equations perform on the previous NFTA samples.

We have collected samples for updating the dNDF equations as well, which will also be shifted to 5000 equations. Through the contributions of our member labs we have collected a total of 65 samples that will update the hay and haylage dNDF equation, 13 of which are new drought samples. We have collected a total of 52 samples that will update the grass hay and haylage equation, 17 of which are new drought samples. In addition, 8 samples have been collected that will be added to 65 corn silages collected last winter that

will all go to update the corn silage dNDF equation.

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 updates! **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.

Cost Sharing on Consortium Equations

In the last few years the Consortium has developed and/or maintains dNDF equations for legume hay & haylage, grass hay & haylage, and corn silage. The corn silage dNDF equation was developed from samples submitted from labs that wanted to work together to develop this equation, and agreed to share in the cost of chemistry. The hay & haylage equations were initially developed from UW samples and the Consortium has since expanded and maintained the equations.

The Seed Breeding companies that are Consortium members have a much longer history of such joint efforts to develop and maintain equations, and exhibit a successful example of collaboration. In the 1990's six seed breeding companies came together, submitted samples, and developed an equation for predicting oven dried, green cut research plot alfalfa samples as a group within the Consortium. Since then, annual updates of the equation have been accomplished by each seed breeder submitting outlier samples and sharing the cost in chemistry for updating.

This same type of method of updating the dNDF equations is also planned, since the in vitro chemistry must be sent out to the UW lab in Marshfield. As listed above, a total of 125 samples will be run for in vitro chemistry in order to update these dNDF equations. Those using the respective equations will be asked to contribute to cost sharing for chemistry.

During the 01-02 Consortium fiscal year, we spent \$1,320 on updating the hay and haylage dNDF equation and did not request any cost sharing from labs using the equation. We are not requiring cost sharing for last year's updates, but any contributions from labs for these updates will be appreciated.

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

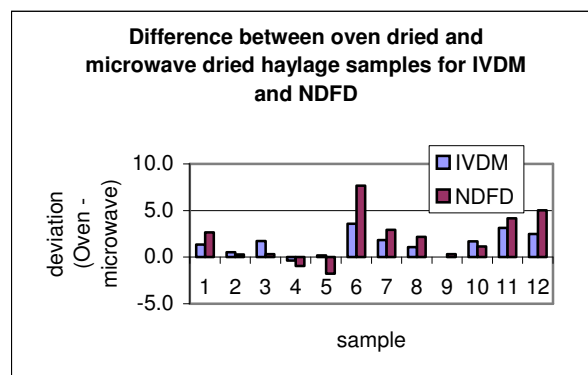
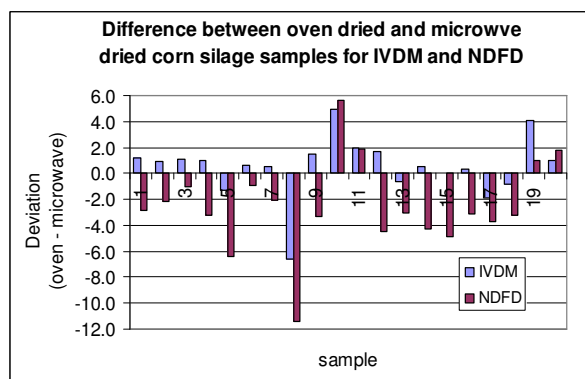
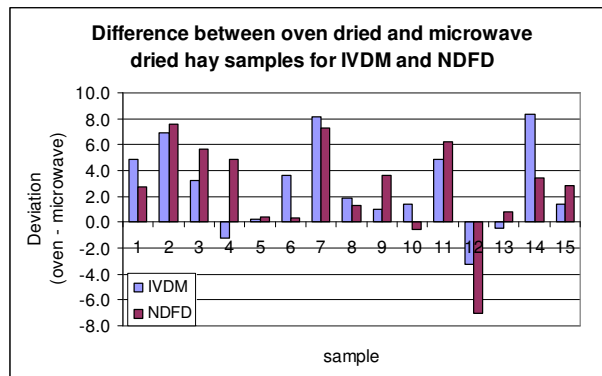
was thought that the changes were due to hot spots created while drying in a microwave oven. Due to the unpredictability of the change, they recommended that RUP be run only on oven-dried samples to avoid changing the RUP during the drying process. From this we suggested the possibility that microwave 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 |



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. 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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