NIRS Forage and Feed Testing Consortium NEWS

December 2005

Dedicated to Increasing the Accuracy and Knowledge of NIRS Testing.

http://www.uwex.edu/ces/forage/NIRS/home-page.htm

NIRSC Board for 2005-2006

We have already begun our new fiscal year, beginning October 1, 2005 and ending September 30, 2006.

From the board elections late last summer, Kelli Conway and Sam Stratton were re-elected to serve in the commercial and seed research sectors respectively. Jim Halgerson is new to the Board and will fill the government/ university sector. These seats are for a term of 3 years.

The Board lineup for the 2005-2006 year includes:

President: Don Sapienza
Vice President: David Johnson
Treasurer: Chuck Kahl
Dan Undersander
Sam Stratton
Seth Willis
Kelli Conway
Paul Peterson
Jim Halgerson
Tim Snyder
Neal Martin (*ex officio*)

Annual Conference 2006 Update

The NIRSC's 2006 Annual Conference agenda has been developed and is posted on our website, along with registration form and hotel/location information. Registration may be returned by fax, email, or postal mail to the address on the form. **Please return your Registration forms by January 31st, 2006.**

This year we are planning our first half day to be workshop sessions, with 3 instrument manufacturers to give demonstrations. In addition to these workshop demos, Perten Instruments will present results of how NIRSC calibrations have performed on their diode array platform. This first day we will also have a question and answer session, which was a big discussion time last year.

Featured speakers on the second day's presentations include Dave Mertens and Mary Beth Hall of the US Dairy Forage Research Center in Madison, WI; seed breeder and commercial lab's highlights; as well as a Southwest region's nutrition and feed highlights.

We look forward to seeing you! If you have any questions about the conference, please contact:
Patty Laskowski
pmlaskowski@wisc.edu
608-489-3960

Southwest Nutrition & Management Conference

The University of Arizona is hosting the 2006 Southwest Nutrition and Management Conference to be held February 23rd and 24th. The NIRSC Annual Conference is back to back with the Southwest conference and is located just 10 minutes away.

Dairy and beef nutrition and management will be the focus with veterinarians, consultants, nutritionists, and academics speaking on a variety of topics to support producers.

For more information about the Southwest Nutrition and Management Conference go to: http://animal.cals.arizona.edu/swnmc/2006/

Converting NIRSC Equations to a Diode Array Platform

Last year NIRSC was approached by Perten Instruments about having our equations converted to their instrument platform. NIRSC's Intellectual Property Committee had been working on process and documentation in order to protect our organization and our members' materials and had recently put in place a research and use agreement. An agreement was detailed and accepted by the NIRSC Board and Perten in September, 2005. NIRSC supplied our calibrations to Perten, which converted them to the diode array platform and began comparing predictions between the NIRSC master and the Perten instrument.

Perten Instruments will present this project at our 2006 Annual Conference and we look forward to hearing the details.

Alistair's Report

Predicting Mixed Samples

A consortium member recently contacted me regarding the discrepant results they obtained from some alfalfa/grass mix samples using the consortium grass hay and alfalfa hay equations. Both equations yielded Global and Neighborhood H values >0.80, indicating that the equations were developed from spectrally similar samples. However, NDF was 6-8% higher and ADF 2-4% higher with the grass equation than the alfalfa equation. This resulted in a substantial difference in reported RFV, as high as 41 points. What is the explanation for this difference? The answer lies in the fact that our equations are based on correlations between the spectral characteristics of particular forages and the wet chemistry values for those samples. The figure below shows the average spectra for the alfalfa hay and grass hay equations.

The average spectra are similar but not identical, and it therefore follows that predictions made from the spectra collected from unknown samples will differ depending on the equation used. In this particular case the user should instead use the Mixed Hay equation, which contains samples more representative of the sample in question.

Technical Support

From Sept-Dec I have accomplished the following in addition to ongoing technical support:

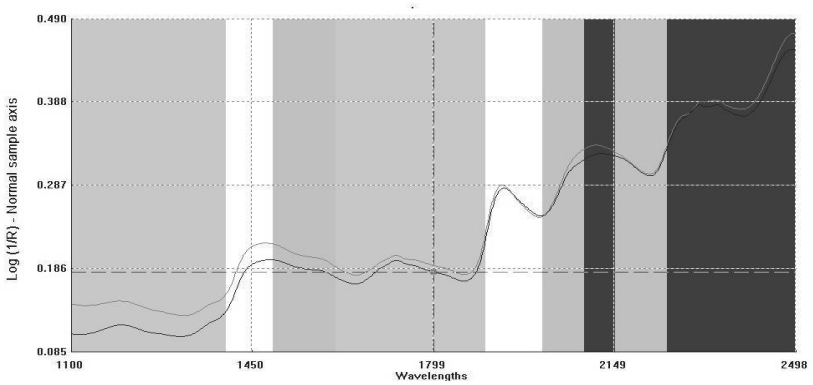


Figure 1. Average spectra for alfalfa and grass hay equations.

1. Supported the Perten equation migration project. A by-product of this effort was improved documentation of our equations.

2. Continued development of the spectra and sample database. Modifications included enforcement of table relationships to prevent duplicates and allow spectra entries and their daughter samples to be added and edited through a single interface. I also added a data entry form and a table of Sites (i.e. members) to reduce data redundancy in the Spectra table. A number of queries were added to summarize data for reporting purposes and some database documentation drafted. Data addition is ongoing as spectra files and samples are received.

The NIRSC 'SpectraWarehouse' database that I developed during 2005 performs the following major functions:

a) Track all spectra files submitted by labs, so we can credit rebates, query whether thy have been selected from or not, determine our backlog

for selections, and to know how many of a particular type were contributed by a particular member, and how many of the samples were selected.

b) Track all samples selected for inclusion into equation updates, so we know their status - e.g. received (or not) from the member lab, scanned, sent to the wet lab and whether and in which file the chemistries have been reported.

3. Equation update samples have been scanned in duplicate prior to shipment to the chemistry lab. Discrepant spectra (high spectral contrast) are re-scanned to ensure quality spectra for equation updates.

4. Five sites were standardized (AAI, OSU, UWA, WLD and FGG). Samples are currently at the Noble Foundation.

Equation Development: Sample and Spectra Selection

Samples: to date 411 samples have been selected for inclusion into various equations, and of those we have received 364.

Spectra: We have received 153 spectra files from 8 members, and these files contain 19075 spectra. A breakdown by type is as follows:

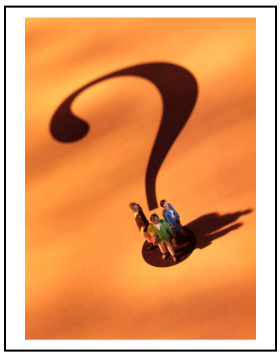
Alfalfa Breeders: 8558
Alfalfa Hay: 30
Alfalfa Silage: 10
Corn Silage, Fermented: 40
Grass Hay: 3902
Unfermented CS: 6535

Contact Alistair with your questions at:
acarr@wisc.edu
608-890-0060

We Need Your Spectra for Selection!

We need to do continuing selection for all of our equation updates.

Send your spectra from all types of forage products to Alistair Carr at:
acarr@wisc.edu ph: 608-890-0060



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

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