



# *NIRS Forage & Feed Testing Consortium*

## **Quality Assurance Committee Report**

**February 14, 2008**



## **Committee Members**

- **Doug Harland – AgSource (Chair)**
- **Lisa Bauman – UW Soil and Forage Analysis Laboratory**
- **Patty Laskowski – NIRS Consortium**
- **Tim Snyder – Renaissance Nutrition Inc.**
- **Michelle Walter/Jerry Dekan – Dairyland Labs**
- **Seth Willis – Weld Labs**

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## Committee Goals

- **Create a Quality Assurance Guidelines Document for laboratories.**
- **Create a parameter list with recommended usage.**
- **Outline the proper use of the NIRSC logo.**
- **Outline the proper referencing of NIRSC equations on lab reports.**
- **Create a model report form as a guideline for laboratories.**
- **Post spectra on website for checking NIRSC equation performance.**

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## Quality Assurance Guidelines Document

- **Document is posted on the NIRSC website.**
- **Feedback on content is presently being solicited from participating laboratories.**
- **Feedback will be analyzed prior to finalization of document.**
- **Document will be updated as necessary.**
- **Preview of Document**

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# Quality Assurance Guidelines Document

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# Quality Assurance Guidelines Document

[Preview](#)

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## Parameter List

- The committee developed a list of parameters most commonly used by laboratories.
- The parameter list was reviewed and adapted to reflect terminology most widely accepted across the industry.
- This terminology is recommended for use on laboratory reports by all NIRSC labs.
- Preview of List

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## Parameter List

[Preview List](#)

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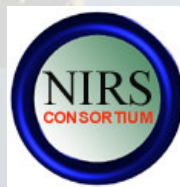
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## Proper Use of NIRSC Logo

When placing the NIRSC logo on your lab report, use one of the following versions:

- This logo represents that an entity is a participating member of NIRSC. Under the logo is stated "Working for better forage analysis."



WORKING FOR  
BETTER FORAGE  
ANALYSIS

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## Proper Use of NIRSC Logo

- This logo represents that an entity uses NIRSC equations. Under the logo is stated, "Proudly using NIRSC Equations." With this option, the member's analysis or results sheet would need to reference which equations are being used and sign an agreement to this effect. "Using" NIRSC equations means doing work or reporting for a 2<sup>nd</sup> party.



PROUDLY USING  
NIRSC EQUATIONS

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## Proper Referencing of NIRSC Equations on lab reports

- Each lab should have a procedures document available for review on their website that includes wet chemistry procedures as well as NIR equation usage.
- If NIRSC equation usage differs from Guidelines Document, list each NIRSC equation used on the report.
- We will show an example of how to reference methods on the “model report form” and show an example website.

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## Create a Model Report Form

- The committee recommends a report format that will contain industry accepted parameter terminology, information valuable within industry, and information specific to NIRSC labs.

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## Create a Model Report Form

- The recommendations for the report form contents are as follows:
  1. Create separate reports for different products and packages
  2. Parameter description
  3. Parameter unit
  4. Parameter value on Dry Matter basis
  5. Parameter abbreviation (if applicable)
  6. Method – NIR, Wet Chemistry, Calculation, or Tabular
  7. Upper and lower ranges of parameter referenced to lab website
  8. Lab procedures referenced to lab website
  9. Use of NIRSC logo (if applicable)
  10. Use of NIRSC Equations referenced to lab website

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## Create a Model Report Form

- Legume / Grass Silage Example



Acrobat Document

- Corn Silage Example



Acrobat Document

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## Create a Model Report Form

The screenshot shows a web browser window displaying the NIRS website. The main navigation menu on the left includes: Home, About Us, History, Hours & Location, Services & Fees, Submission Forms, Lab Procedures, Publications, Staff, Contact Us, Soil Testing, Forage Testing, Waste Analysis, Web Reports, Online Accounts, and Madison Lab. The main content area is titled 'Feed and Forage Analysis' and contains a sub-menu 'A. Wet Chemical Analysis' with the following items: 1. Sample Preparation & Lab Dry Matter, 2. Total Dry Matter, 3. Crude Protein (CP), 4. NDF (Neutral Detergent Fiber), 5. ADF (Acid Detergent Fiber), 6. Lignin, 7. ADFCP, 8. NDFCP, 9. Ash, 10. Fat, 11. In Vitro Digestibility, 12. Total Starch, 13. Starch Digestibility, Degree of Starch Access, 14. Major Mineral Analysis (P, K, Ca, Mg), 15. Sulfur Determination in Manure and Forage, 16. Total Elemental Analysis with ICP-OES and ICP-MS, 17. Nitrate Nitrogen, 18. Heavy Metals, 19. Selenium, 20. Chloride, 21. Ash.

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## Create a Model Report Form

The screenshot shows the same NIRS website, but with the 'NIRS Analysis' sub-menu expanded. It contains the following items: 1. Sample Collection, 2. Subsampling, 3. Drying, 4. Grinding, 5. Mixing Dried and Ground Sample, 6. Packing and Scanning, 7. Equation Use. Below this, there is a section 'A. References for Calibrations Used' with five sub-items: i. Alfalfa Hay: NIRS Forage and Feed Testing Consortium, June 2007 alfalfa hay calibration, file name: ah20-3. Parameters used: DM, CP, ADF, NDF, dNDF48, Ca, P, K, Mg, ash, lignin, fat, RUP. ii. Grass Hay: NIRS Forage and Feed Testing Consortium, June 2007 grass hay calibration, file name: gh50-2. Parameters used: DM, CP, ADF, dNDF48, NDF, Ca, P, K, Mg, Ash. iii. Mixed Hay: NIRS Forage and Feed Testing Consortium, June 2007 mixed hay calibration, file name: mh50-3. Parameters used: DM, CP, ADF, dNDF48, NDF, Ca, P, K, Mg, ash, fat, lignin, RUP. iv. Mixed Haylage: NIRS Forage and Feed Testing Consortium, June 2007 mixed haylage calibration, file name: hg50-3. Parameters used: DM, CP, ADF, dNDF48, NDF, Ca, P, K, Mg, ash, fat, lignin, ADP, RUP. v. Fermented Corn Silage: NIRS Forage and Feed Testing Consortium, June 2007 fermented corn silage calibration, file name: ch50-2. Parameters used: DM, CP, ADF, dNDF48, NDF, Ca, P, K, Mg, ash, fat, lignin. Below this is item 8. Sample Storage. At the bottom, there are links for 'Manure and Environmental Analysis' and 'Greenhouse & Lime'.

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## Create a Model Report Form

[Website](#)

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## Posting Spectra on Website

- **Spectra has been collected for the following products:**
  - Alfalfa Hay
  - Alfalfa/Grass Mixed Hay
  - Alfalfa/Grass Mixed Haylage
  - Grass Hay
  - Fermented Corn Silage
  - Unfermented Corn Silage
- **These spectra will be available on the NIRSC website for member labs to use in monitoring equation performance.**

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**Thank You**

**Questions / Discussion**

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