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NDS Dynamics

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Welcome to NDS Newsletter

By Rachel Eickman
NDS-NA Staff

Thank you for taking time to read our Newsletter. In our busy life it is the investment of time which is so precious. David is putting the finishing touches on some video tutorials that will be available on the website. So please take a minute and check out the updated website!

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Formulating Diets with Mixes

By Ermanno Melli
RUM&N Sas Research & Development

It is common practice in the Dairy Cow diet formulation, to work with mixes in order to simplify the on farm feeding operations and to make the link with feed industries delivering those mixes easier.

The CNCPS model was conceived in order to provide detailed evaluations for each individual feeds; within that domain, the accuracy of the predictions is high. This means that when working with separate ingredients there are no issues and the model will balance down to the metabolizable level accurately. However, when ingredients with different metabolizable characteristics are combined, as common practice, working with pre-mixes and mixed feeds will make you enter a different scenario.

The basics of the CNCPS model, with respect to calculating digestibility and energy values, employs a differentiation of the feeds according to their characterization, in order to estimate their own digestibility and energy. The direct consequence of this is that when different feeds are combined, this is most often the case with mixes, the weighted average approach for the dynamic parameters is not the appropriate way to get a good mix characterization.

More in detail, the main issues are related to the degradation rates for Carbohydrates and Protein fractions. These issues are due to the attempt to combine individual feeds with differing Kd values in a mix which, by nature, can only have a single generalized Kd value. The nature of the model is that the back calculation of the metabolizable values for mixed feeds with ingredients of differing individual Kd values produces only "generally" accurate degradation rates. The result is that the single Kd value for the combined feeds will not determine dietary ME and MP with the same degree of precision obtained with the individual ingredients. This intrinsically limits the accuracy



Don't be like this farmer, just drop us an email or give us a call!!!
Our contact info is at the end of the newsletter!

Standardized XML Format

By Dave Taysom of Dairyland Labs

The laboratory inputs for updated models and ration programs continue to grow in both the number and types of analysis required. With this growth, it became very apparent that laboratories needed to “standardize” the terminology for lab analysis as well come up with a data file formats that could be used across the industry. Standardized terminology is important so that the end user can read a forage report from a reputable lab and understand what has been measured. In addition, the industry benefits when the terminology is consistent across laboratories. For several years there have been attempts by various organizations within the Dairy industry to accomplish this.

In 2011, the representatives from DairyOne, Cumberland Valley and Dairyland Laboratories Inc. took on this project and developed a “standardized” XML data format. Together, they designed the file format structure and the definitions that apply with the goal of having the industry adopt this format.

Today the ‘standardized” XML format has been adopted by several models and ration programs as a method to import data directly into the software. This format is available to any laboratory or user of laboratory analysis.

While these laboratories are competitors, there is an understanding among them that working together on projects like this will benefit the entire industry.

Don't forget we have tutorials available on how to import xml's into your NDS program directly from Dairyland Laboratories and Cumberland Valley. You are also able to take an average of your feed samples in your NDS so your past samples are not just a thing of the past. They can be used with the new samples to create a 'Moving Average'. And we have tutorials for that as well!

NDS Seminar coming in October 2014

NDS-NA will again be hosting a 2 day seminar looking at a total review of the NDS platform and the current CNCPS biology with the potential for future updates. We will be in Minnesota this year on October 28th and 29th, hosting the meeting at the Embassy Suites in Bloomington. We also have a block of rooms available for those who are interested in attending the workshop. An agenda will be out soon, and space is limited so please let us know if you are interested in attending! Send Rachel an email at ndsrumen@gmail.com



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of determining the supply and therefore also generally limits the ability of the optimization engine to obtain optimal solutions for model constraints.

From a formulation standpoint, attempting to formulate the same diet by substituting the mix for its separate ingredients will not yield the same results. Even though a solution can be obtained, it will not be reliable at the ME and MP level.

Below a numerical example that considers a blend of corn and soybean, evaluating the starch fraction dynamics.

Feed	Blend %	Starch % DM	Starch % mix starch	Kd %/h	
Corn grain ground	50	74.8	96.9	15	(14.54)
Soybean meal	50	2.4	3.1	25	(0.78)
Total	100		100		
Weighed average		38.6		20	
(Model values)					(15.32)

Since 96.9% of the starch in this mix comes from corn, the rate of degradation of the starch fraction in the mix (15.32 %/h) will be very close to that of the corn (15 %/h) and will not match the weighted average of Kd (20 %/h) from the ingredients included.

Since there are strong interconnections with the theoretical basis of the model, we recommend formulating the diet having the availability of the mixes formulation and not just with a single ingredient generated by the mix. This will allow you to increase the accuracy of the predictions from **NDS**.

NDS platform allows you to make mixes (protein, energy, mineral-vitamin, etc.) that can be directly used in the formulation of rations for a specific farm and/or for multiple farms and rations.

In addition, you can send composites for production and commercialization to the feed mill, getting high level of integration with the work on the field.

In order to protect your formulation knowledge and technology, the *Composites Formulation Module* of **NDS** also allows you to export formulas of composites or premixes in encrypted form, which is unreadable after import, or with protection through password - to be more precise accessible only by knowing the password assigned during the export.





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