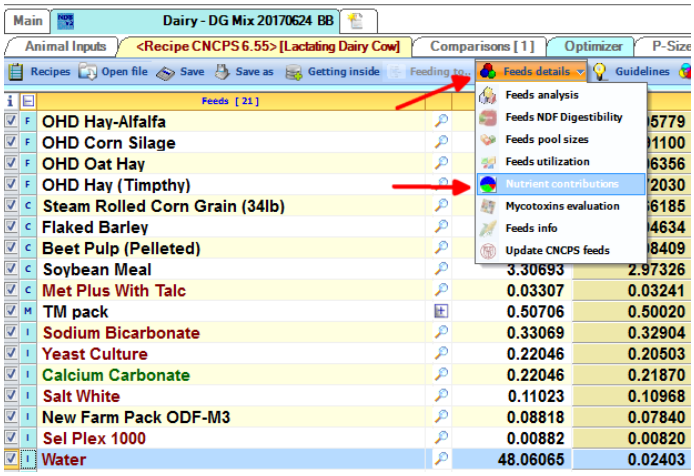
http://www

NDS Dynamics

September 2017
Volume 5 Issue 5

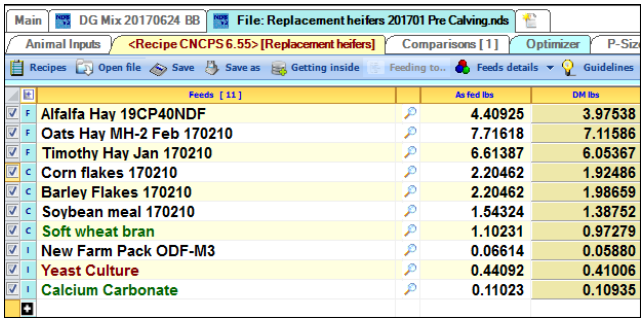
Troubleshooting Rations in NDS – the Nutrient Contribution Tab

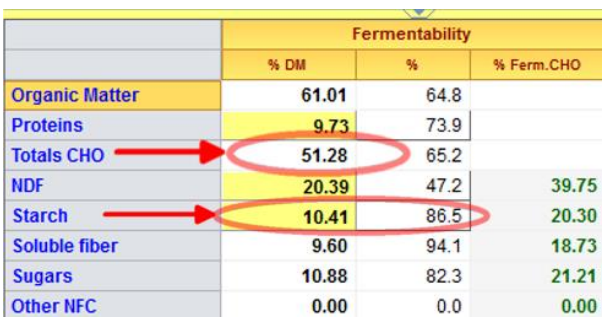
By Buzz Burhans, PhD; Dairy-Tech Group & NDS-NA
with Dave Weber, DVM; NDS-NA; and Ermanno Melli, RUM&N Staff



Most nutritionists have to troubleshoot rations sometimes. Maybe it is one of our own rations, and the cows are not performing as expected. Maybe a colleague asks us for a second opinion on a ration. Some of us routinely provide technical support to other field nutritionists. For multiple reasons, as we troubleshoot rations we often need to figure out some specific unusual nutrient content and what is causing it. One very useful tool in NDS for this task is the Nutrient Contributions screen, accessible on the menu bar at the top of the Ration screen by clicking on the menu item "Feed Details" and then clicking on "Nutrient Contributions".

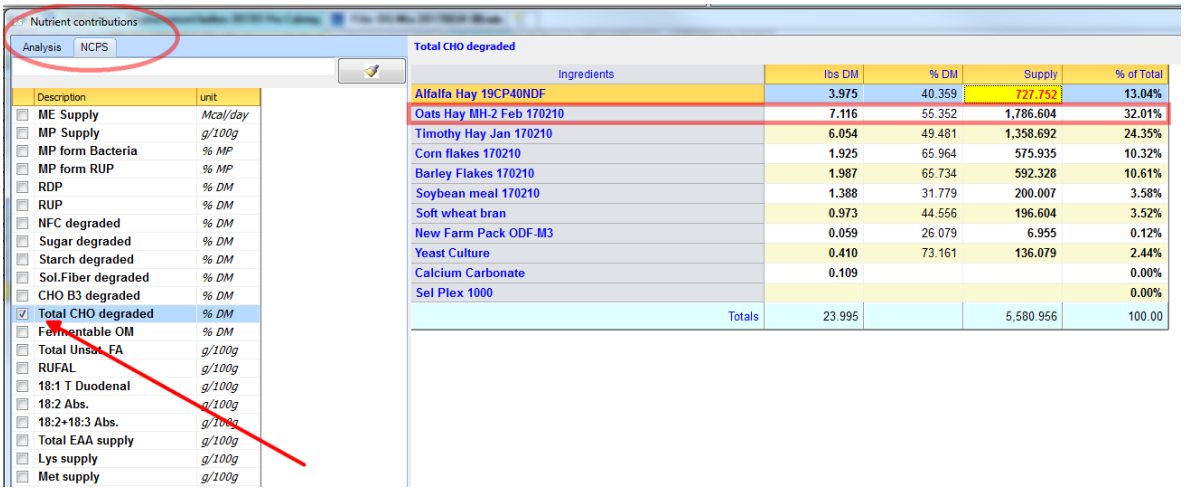
We do not use the Nutrient Contributions tab for routine ration evaluation. It has been most useful to us when we have had to troubleshoot a ration, and some nutrient output doesn't seem to make sense. For instance, I was recently asked to troubleshoot a situation where there were many transition health problems in primiparous heifers. The diet is below left. Below at right is the fermentability tab for the ration. Those of you who have been through one of our training sessions know that the fermentability tab is one of our key suggested assessments for systematically evaluating rations. The total carbohydrate fermentability (51.28% of DM, below right) for the springing heifers' ration was higher than I had ever seen, even for lactating diets. On the other hand, the fermentable starch was quite low at 10.4% of DM, although it was highly fermentable at 86.5% of starch intake.





When I looked at the ration ingredients, I was quite surprised to see that this ration was so high in Total Fermentable CHO, given that it had no corn silage, and all forage was dry hay. To better understand where the high fermentable CHO

was coming from I turned to the Nutrient Contributions tab. (below). Note that in the upper left corner of the Nutrient Contributions tab there are two sub-tabs, which allow you to choose from a list of NCPS nutrient fields (i.e. CNCPS model outcomes) or Analysis nutrient fields (the same kinds of nutrients listed at list found at the right side of the nutrient field). Checking a checkbox at the left of the list of nutrients on either list populates the table on the right with the amount of DM, the % of the specific nutrient being examined in each feed's DM amount, and the supply (in grams) of the selected nutrient derived from each feed (in the example below, "supply" is the total grams of degraded CHO). The rightmost column shows the percentage of the selected nutrient supplied to the diet by each ingredient.



In this ration, the oat hay is supplying almost 1/3 (32%) of the total fermentable CHO. In my experience this is an unexpectedly large contribution from oat hay. Examining the ingredient analysis, I found that it had a very high WSC sugar content (27.1%), and the aNDFom had a high digestibility, 67% at 240 hours. After conferring with the owner, I found that the both the timothy and the oat hay had been imported from Australia. A check of the global feed library of two major feed labs found the average NDFd for oat hay was slightly lower than the ration hay at 63%, but the average oat hay sugar content, ~17% WSC, was 10 points lower than the Australian oat hay,. I discussed with the owner the potential for error in the NIR analysis because the sample was not a US sample, and likely was from an oat variety with higher sugar content. Thus it was likely an outlier in the database of the US lab that had done the analysis, making the NIR determination less reliable. On the other hand, the cows were saying that the diet likely was in fact too "hot" in terms of fermentability, suggesting that the sugar content might actually be that high.

As this actual troubleshooting example shows, using the Nutrient Contribution tab helped to quickly and easily identify the source of a possible problem with a specific ingredient. I have previously used this tab to help me locate a feed that had a gross error in Lysine content in a ration formulated with supplemental Lysine. Another recent case involved the need to explain the performance difference between an original and an updated ration with similar ME content, but different ingredients; examining the ingredients for source of the ME supply in that case was informative. Not necessarily for evaluating, but for troubleshooting, the Feeds Details>Nutrient Contribution tab can be very useful!

Send us your comments on these topics please…have you used the Nutrient Contribution tab? Was it helpful? Dave is at rumendvm@gmail.com; Buzz is at bburhans@dairynutritionhealth.com

Note that the features and utilities, including the Nutrient contribution tab described above, as developed by the NDS team, are not components of the underlying CNCPS model, and do not change the CNCPS outputs or results. *Questions about use of this feature should be directed to the NDS support team, and not to the CNCPS group at Cornell.*