Ag Health News
LABORATORIES

WHAT'S DOMI

How do You Rank Your Forages for Quality?

When purchasing hay, what tools do you use to identify quality? How do you set a price accordingly to reflect the quality? Is it one nutrient such as crude protein (CP), or multiple nutrients such as CP, ADF, and NDF? Maybe you use an index system such as RFV or RFQ? Have you purchased hay based on either nutrient values or index values that you thought were a certain quality, however, when you started to feed them the cows did not perform accordingly?

These are common questions heard throughout the industry. Relative Feed Quality (RFQ) is an excellent equation but requires extra nutrient analyses which make it expensive to generate. Relative Feed Value (RFV) is the most common index historically used to buy and sell hay. It is an equation that was developed using ADF and NDF values. There are major flaws in this index (ie; it doesn't account for protein or ash content) that are well known throughout the nutrition world.

Digestible Organic Matter Index (DOMI)

We would like to present another index tool for evaluating forages. It is referred to as DOMI or Digestible Organic Matter Index. The goal of this index is to estimate the pounds of digestible organic matter in a ton of feed. The higher the DOMI, the higher the feed quality. Some of the unique features of this equation are that it subtracts out the ash portion of the forage so the equation is only looking at the 'organic matter' portion of the forage. This is important in the Western part of the United States where there tends to be high ash levels (>12%) in some forages. Another unique feature of DOMI is it estimates the amount of undigestible NDF via a 30 hour in vitro NDF digestibility and subtracts it from the NDF content in the forage. It is well known that forages of similar NDF concentration or RFV level will vary in fiber digestibility. This factor greatly influences how the forage will perform when fed.

DOMI is a valuable equation because it takes into account two of the primary factors (ash contamination and digestibility of NDF) that will influence quality but have not been used in some ranking tools in the past.

This equation has typically been reported as the amount of digestible organic matter (DOM) in a ton of feed on an 'as-fed' basis, therefore, the moisture level in the forage will also influence DOMI values. The DOMI is not applicable to corn silage. DOMI allows comparison between alfalfa samples or between non legume forage samples.

Disadvantages of RFV in ranking forages

The RFV index fails to give value for CP content in forage. Also, the elevated ash levels in forage will falsely elevate ADF and NDF levels thus artificially reducing the RFV value of the forage.

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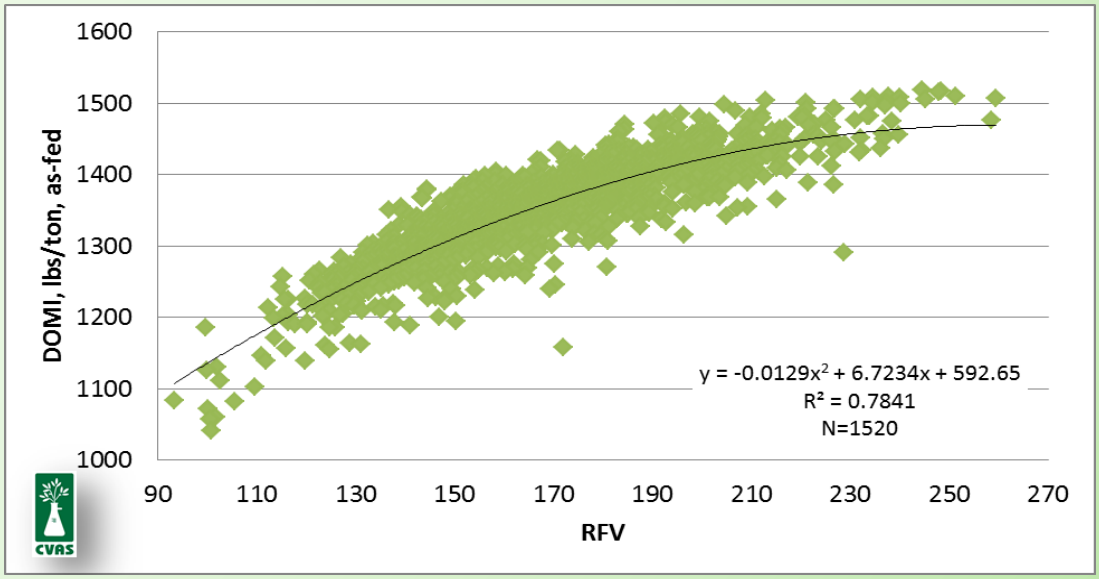
Regression of Digestible Organic Matter Index on Relative Feed Value (RFV; CVAS, 2011)



How does DOMI compare to RFV?

There is a relationship between RFV and DOMI. However, you can see at any given RFV there is a range in DOMI. For example, if you look at an RFV of 150, the DOMI ranged from ~1200 to ~1400 lbs of digestible organic matter per ton of hay. The 1400 DOMI hay has more nutritional value than the 1200 DOMI hay and should be priced accordingly. If the 150 RFV hay is used as the indicator of forage quality, all of the 150 RFV hay that ranged between 1200 and 1400 DOMI would be priced the same even though they differed in nutritional quality. Some of the hay would be overpriced because the nutritional value of the hay was less than the 150 RFV suggested, while other hay would be underpriced due to the higher nutritional value than predicted by the 150 RFV.

Take home message:

1. DOMI is an index that can be used to rank forages (except for corn silage) based on nutritional quality
2. DOMI estimates the pounds of digestible organic matter in a ton of feed on an as-fed basis
3. DOMI corrects for ash content and estimates the amount of indigestible NDF present in the forage (which the RFV equation **does not** account for)
4. DOMI is an effective tool to help with pricing forages that should be considered by management teams on dairies
5. ***Ag Health Labs is currently reporting DOMI values on both NIR and wet chemistry results***

Please feel free to contact Ag Health Labs if you want to discuss DOMI further!!

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