by John Goeser

Break feed down to build toward economic value

WHILE professional accomplishments are humbling, nothing eclipses the sheer joy and reward associated with being a dad and raising my children. In this month's article, I'll weld the two together as I'm venturing into a new area in technical support: working with my fourth grader on his school arithmetic homework.

Matching up my work as a father with a dairy nutrition discussion, this past month Federico Alvarez also reached out for support while en route from Uruguay to Argentina for a producer meeting. I learned he and his nutritionist team are using the University of Wisconsin FeedVal v7.0 feed ingredient decision software.

He was presenting this work to producers and was asking for my insights into the tool understanding that University of Wisconsin-Madison's Victor Cabrera and I collaborated with others on the v7.0 model. Thinking back to our FeedVal work four or five years ago, I realized there are parallels between fourth grade math and assigning feed values.

Pull out the pieces

As my son, Sam, works through his multiplication and division, we break problems down into components to help him arrive at the correct answer. For example, if he's tasked with multiplying 125 x 5, we break this equation out into (100 x 5) + (25 x 5). Sam can do this work in his head, and we arrive at the right answer. The approach is similar with FeedVal v7.0 or other ingredient decision software applications, where we break feeds out into their respective nutrient components and then use the cost per ton associated with each feed to estimate the value for the nutrient components.

Building upon this concept with

REGULARLY EVALUATING THE COST of feed ingredients is a worthy practice given the volatility in commodity markets.

an example, if we know the cost and protein content of canola meal, soybean meal, and blood meal, we can determine an average protein unit value. We first assign the cost per ton to the protein content for each feed. Then we can average the protein value across all the feeds.

This approach crudely assigns the value associated with a unit of feed protein, and we can identify over- or under-priced feeds relative to the protein each brings into the diet. The math looks as follows, under this basic scenario:

- Canola meal: 42% DM crude protein (CP) and $360 per ton = $8.57 per unit CP
- Soybean meal: 52% DM crude protein and $420 per ton = $8.07 per unit CP
- Blood meal: 95% DM crude protein and $1,310 per ton = $13.78 per unit CP

It's pretty clear that canola and soybean meal are relatively close in cost per unit of protein compared to blood meal, which is quite high and appears overpriced. In some past conversations, we've used this napkin math approach to estimate protein feed values and make a decision. However, soybean meal and canola contribute more nutrients than just protein, and your lactating diet requires various nutrients to be fed economically.

Most of the time, we need to account for the several nutrients or energy value in our feed valuation efforts. Here is where FeedVal, SESAME, and ingredient decision-making apps come in.

Spread out the costs

FeedVal applies matrix math to estimate the value associated with selected nutrients, total digestible nutrients, or nutrient digestibility values. We're able to do this by breaking the cost down for each feed and spreading the cost across whatever selected nutrition parameters we choose. FeedVal then averages the calculated nutrient values for each of the feeds evaluated, and we can build back up an estimated feed value. By breaking feeds down and assigning valuing nutrients that are important to us, we unlock a path to feed cost savings!

I recognize FeedVal and other applications are flexible. Different nutrients can be selected in the feed valuation effort, much like we can break the equation 18 x 5 into (10 x 5) + (8 x 5) or (9 x 5) + (9 x 5) to arrive at the right answer.

In the case of FeedVal, the "right" answer depends upon the high-value nutrients for your dairy's ration. In most cases, I recommend starting with starch, protein, and total digestible nutrients, though other situations may need to value fiber,

fat, or fiber digestibility.

For example, to determine high oleic soybeans' value, we would include protein, fat, and total digestible nutrients in the evaluation. This can quickly be done by selecting the nutrients that matter at the time within FeedVal v7.0 or the ingredient decision-making app.

Ensure you have robust nutrition analyses as well for the feed ingredients your farm is considering. While the FeedVal ingredient nutrition analysis laboratory is robust, built upon Rock River Laboratory's commodity feed analysis database, commodity feeds are not consistent in nutritional value. This is a topic we'll revisit in the future.

It pays to keep track

The feed value process may seem complex, but give it a try. On a simple level, valuing feeds is just like what I've taught Sam in breaking apart a complex math equation.

The frequency you place a value on feeds will depend upon your contracts and purchasing needs. Given the volatility in commodity markets and razor-thin dairy margins, your farm could work through feed evaluations regularly to keep feed costs in the best position possible. 🐄

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