



by Steve Martin

FEEDING FOR THE BOTTOM LINE

Are you addicted to alfalfa?

IN THE world of feeding dairy cows, no single ingredient is as revered as alfalfa hay. Only corn silage offers any real competition. This is an opinion fueled by experience, science and no small amount of emotion.

Not having grown up in the dairy industry, I came on the scene with fewer industry tendencies than some. This was mostly a hindrance early in my career, but was also a positive because I questioned things that were industry norms for others. It didn't take me long to learn that alfalfa hay has a special place in the hearts of most dairy producers.

Now after many years feeding dairy cows, I have come back to questioning the importance of alfalfa in dairy rations. Is it really a "can't do without" ingredient?

As I consult with dairy clients I try to measure everything against the ruler of economics. In this case, the issue relates to the actual impact that a strong preference for alfalfa has on the overall profitability of a dairy. Does feeding alfalfa always contribute positively to profitability?

The key to answering this question depends on the market price for dairy quality alfalfa hay. But equally important are the prices of corn, soybean meal, canola, grass hay, straw and the like.

All of these ingredients have the ability to deliver the same protein and carbohydrates as beloved alfalfa. The economic question is, what is the most cost effective way to do so?

It is also worth noting that in addition to the nutrient content of feed ingredients, we must always consider their physical form or particle size. This aspect is equally as important. If alfalfa hay has the perfect blend of nutrients and particle size, at what price can alternative ingredients mimic that perfection?

In my opinion dairy cows don't require alfalfa hay, although there might be a good fit for its particular physical package of nutrients. We would be smart to take notice of the obvious advantageous blend of nutrients and physical properties of alfalfa hay. Cows have told us this for a long time.

The task of a solid, economically minded ration formulator is to use good nutrition modeling software to make sure that we can't deliver the same nutrients and physical properties at a lower cost.

We should also note that producers' strong preference for alfalfa hay often drives up its market price due to relatively inelastic demand. Since it is such a stalwart in so many rations, its price often rises above its true nutrient value. In such cases it is prudent to look for viable options.

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For a few key ingredients in dairy rations, most notably alfalfa hay and whole cottonseed, some producers simply have a price point past which they will no longer use them. Likewise, other producers will keep them in the ration no matter what the cost. Neither approach is correct.

A better one is to consider the price of any ingredient in relation to other ingredients that could replace their nutrient contribution to the total diet. The other consideration is, how does the value of milk compare to the cost of the ingredient? In this case, how do the prices of corn silage, sorghum silage, wheat hay and soybean meal compare to \$300 per ton alfalfa hay? And are we selling \$25 milk or is the price more moderate at say, \$18?

Ration formulation models

There is a tool that can help us in this effort. Use of dynamic ration formulation models increase the chance for success in replacing an important ingredient like alfalfa hay. These complicated math tools offer us the chance to "model" the magic of alfalfa hay as we work to potentially replace it in a ration.

It is clear that the physical form of alfalfa is important to its success. Nutrition modeling software, along with the use of a particle size-determining shaker box, gives us the best shot to accurately make the replacement.

In a nutrition modeling program, key nutrients have at least three primary attributes that help describe each feed ingredient to the software. These are the percentage of each nutrient that is used; an index to describe the rate and extent of the nutrient's digestibility; and the particle size or length of the ingredient.

By using this information it is quite possible to replace even a key ingredient like alfalfa hay and expect the same milk production results.

Let's assume alfalfa hay costs over \$300 per ton delivered to the dairy. Some options for alternative ingredients include corn gluten feed, DDG, canola, wheat straw, silage, and a tomato-based vegetable waste byproduct. Let's also assume that recent shaker box findings for the TMR in-

dicates a near perfect blend of particle lengths. And lastly, cow performance and health are both good. So the goal is to replace the nutrients and particle length of alfalfa with some blend of those other ingredients.

As I often say, "These are things for which you can't do the math in your head!" Nutrition modeling software will figure how much of each nutrient, and what digestibility characteristics, are necessary to match what is being supplied in the alfalfa hay. Particle size replacement can then be easily made by silage, straw or other hay type ingredients.

After the diet is mixed and fed, the shaker box can be used once again to evaluate the particle length math in the software. Loading order and mixing time can often be adjusted to fine-tune the final results.

But then there is the pesky issue of palatability. This is a non-nutrient factor that is impossible to include in anyone's math. Often times alfalfa hay is a positive palatability factor. Or at least we think so. It is very difficult to measure palatability, especially for ingredients included in mixed rations.

Removing alfalfa hay, even though we believe it to be a palatability plus, does not leave us with an unpalatable ration. It is probable that the biggest issue with what tastes good to a cow is more related to what tastes, or more likely smells, bad to a cow.

Replacing alfalfa hay with ingredients that have overall poor quality, poor storage effects, off odors, variability, etc. will likely reduce the prospects of a successful replacement. But using common "cow-feeding sense" with things that we already have in the diet or have had good experience with, will ensure good acceptance by cows.

The point is that cows make milk out of nutrients, not ingredients. No dairy producer should feel addicted to alfalfa. Instead, they should make sure that required nutrients are delivered in a palatable form that promotes good rumen health.

Doing so will insure that dairy producers are truly feeding for the bottom line. **WEST**