HOARD'S DAIRYMAN

You can't fix mature forages with more corn

by Steve Martin

I HAD a client recently ask me to help decide between a higher price 180 relative feed value (RFV) alfalfa and a lower price option for a clean but more mature hay that tested around 140 RFV. As I do with all ingredient value questions, I turned to the formulation model to help me decide. Since there are an unlimited number of good solutions for every ration, finding the one that meets the needs for the lowest cost is usually the winner.

Martin

The probable answer to the client's question was most likely to buy the better hay. Forage quality is the most important factor in feeding dairy cows, right? Well, the answer is maybe. There is a reason we use the computer formulation model to help us with this math. Even though, most of us have good cow sense and solid dairy intuition, this is really math that you can't do in your head.

In a true sense, the experienced dairy ration builder should be able to achieve the same nutrient supply with either of the hay choices offered. There are, however, often other issues with lower quality forage that would be outside the realm of nutrient formulation.

Assuming that the lower quality hay is simply more mature and not full of weeds, put up wet, or filled with moldy spots, it really does come down to a nutrient supply question. Depending on the other ingredients available to feed and ration mixing and processing capabilities, the cheaper and lower quality hay may actually be the right choice.

Dealing with lesser quality

Due to this principle, I have found myself in recent years recommending my clients sell their top-quality hay and feed the more moderate quality material. We should always remember that cows were designed to eat roughage, so a little extra fiber in a cutting of hay isn't necessarily a bad thing. But, it may require you to keep an additional ingredient around the commodity barn if you want to make the same milk with the lesser quality hay. You usually can't fix forage quality problems by simply feeding more corn.

By definition, the ingredient or nutrient modeling that occurs when rations are built in today's dairy industry can be successful no matter the maturity of the hay. The goal of any diet formulation is that within reason, no matter what the quality of forage is, the diet put in the bunk can meet the cow's needs.

When you consider a good or bad alfalfa hay, wheatlage, or grass hay analysis, there are reasons why some are classified as good and others not. This evaluation requires a little plant physiology and also will explain why I left corn silage out of the list. Corn silage quality is mostly driven by starch content. Alfalfa and grass forages are more complicated. Poor corn silage can usually be fixed in a ration by adding more corn grain. This is not so when considering higher fiber, more mature alfalfa, small grains, or other grasses.

So much of the discussion around the quality of alfalfa centers on its protein level. This is still true, but to a lesser degree, for things like wheat silage. What is really a more important consideration when evaluating quality in the forages is the carbohydrates, not the protein. Protein shortages are easily addressed. Problems with forage carbohydrates take a little more time to sort out.

The funny thing about lower quality forages is that they are full of stuff that cows really need to stay healthy and produce high levels of butterfat. It is a double-edged sword, though, as too much indigestibility will reduce milk production.

More ingredients needed

When plants get too mature before harvest, the fiber increases in concentration and declines in digestibility. We have very strong tools beginning with a good forage analysis to measure both the amount and digestibility of the fiber so we can know how to balance it in a good ration. This is where the need to keep another ingredient on the dairy comes into play.

Let's say you had a rainy stretch during hay harvest and the crop stood an extra two weeks before you had a sufficient window to harvest. If your goal was 25-day intervals, then for each day past 25 days, the fiber goes up and the digestibility of that fiber drops. As well, things like protein and sugar decline with the rise in fiber. If you eventually get the crop in the pit or in the barn, how do we adjust the ration to be sure what goes to the bunk is the same nutrient supply as if it had been a perfect harvest at the 25-day interval?

The most noteworthy result of the higher fiber forage is that you will have to feed less of it. We used to think in terms of a goal for forage as a percent of a well-balanced ration. Now, we look at the detail of indigestible fiber in that forage and use that to dial in the feed rate.

So, if you have a certain amount of this indigestible fiber that is required in the cow, and you have a forage that grew too long (and thus has higher levels of this indigestible fiber), the end result is that it requires a lower feed rate of that forage to meet the cow's fiber needs. What should you feed to fill the space left by the lower forage feed rate? The answer is not as easy as "just feed more corn."

Consider the difference between a 15-pound per cow feed rate of an immature wheat crop where harvest was perfectly timed and a more mature wheat crop that was delayed by three weeks of rain. The crop that was harvested at the later date may end up being fed at closer to a 12-pound rate per cow. It is the job of the nutrition model to decide what to use to fill the 3-pound difference.

In this situation, with an extreme harvest-time difference, some of that 3 pounds will probably need to be a protein meal like soybean or canola. When deciding what should make up the rest, we should think of what was lost in the forage as it matured. The greatest loss was in digestible fiber. Adding corn would not be as good as adding something like soybean hulls or beet pulp that are rich in exactly what we need — digestible fiber.

Critical to the cow

The health of a dairy cow is highly dependent on having the right amount of structure in its rumen to keep it functioning correctly. We need to get as many lactations out of the cow as possible before it has a career change into the beef industry. Meeting this roughage or fiber need is always a great way to get as many lactations as possible from your cows.

The part of the fiber that offers roughage but is also digestible is what drives milkfat synthesis and helps keep the cow profitable. The beauty of this need for digestible fiber is that it doesn't have to come from forage. It can come from a variety of options including by-products that are often a better economic value than forages.

Think about the indigestible and more lengthy fiber in forage as rebar for the rumen. We need this, and it can come at times more easily from a forage that was more mature at harvest. This principle helps promote higher yields and thus lower forage cost.

If there are shortages in digestible fiber to ensure the butterfat tests levels that you would like to see on the milk check, things like soybean hulls, beet pulp, gluten feed, and the like may be an easier path to achieve that goal. The nutrition model will sort it all out for you and help ensure feed costs are being managed along the way.

I won't go as far as saying that forage quality is not important for good milk production, but I will say that forages that have higher yields and lower digestibilities may end up winning in the end for milk production, cow health, and economics. At times, to get the forage digestibilities that you desire for maximum milk flow, the resulting lower forage yields raise costs so much that it just doesn't work.

Cows need forage. Cows need indigestible fiber. Perhaps growing the indigestible fiber and buying a little more of the digestible fiber is a way to improve income to the cropping operation through higher yields. We can still have a good ration in the bunk through the help of a highly digestible, high-fiber by-product.

For most dairies, a good balance of profitable crop and forage farming and successful milk production will be the best decision. Understanding plant physiology, farm economics, and by-product values maybe the best mix to be sure we are farming and feeding for the bottom line. *WEST*

The author is the founder of Dairy Nutrition and Management Consulting LLC, which works with dairy producers and heifer growers in multiple Western states.