



by Steve Martin

On-the-fly ration tweaks

I LIKE to say that feeding dairy cows is based on good biology and smart economics. But I would like to add at least one more strong component to the process – logistics.

When building diets, logistical issues often have as much to do with an eventual formulation as protein and energy levels do. It is simple math, but crucial nonetheless. Feed rates for silages to last 365 days, or a wet by-product like wet brewers that has limited storage space and shelf life are often the first problem to solve when building a diet.

Silage usages are usually checked monthly and adjustments made as you go along if initial estimates are not resulting in the usages needed. These are usually more thoughtful and longer-term changes that don't differ much in the thought process of the original formulation plan. In addition to correcting the feed-out rate of the silage in question, this change offers the opportunity to address a few other indicators as well.

Perhaps intakes are differing from expected levels and are the source of the inventory problem. Maybe ingredient costs have changed or performance is lagging. Every formulation change needs to be well thought out, detailed, and not made in haste.

But what about issues with diets that have a change that is much more temporary in nature? In a period of recent heavy rains, a client was unable to get to his silage pile until the area around the face dried out. Perhaps trucks are hard to find and incoming logistics on your major protein ingredient are cut in half. Or maybe the most common is a short-term outage of local by-products.

These local by-products are often a good feeding value economically and when agreeing to use them you expect some amount of variability in supply. This may be a deal-breaker for some, but for many dairies using

these by-products is a significant feed cost advantage and the unavoidable disruptions are worth it.

But at what expense to the cows are these ration changes made? By considering four ration-building principles, changes can be made on the fly with the least potential impact on cow health and milk production. These principles are: be careful to replace (1) dry matter pounds, (2) protein, (3) starch, and (4) fiber/roughage characteristics of the current diet.

Replace DMI pounds

More times than not, it seems the ingredient that needs to be temporarily replaced is a wet feed. So it is crucial that the temporary ration replaces the correct pounds of dry matter, not as-fed. A fine-tuning on this point would be that if you are replacing a wet product with a dry one, if possible add enough water to the TMR to keep as-fed intake as close as possible to current levels.

Failure to do this correctly will result in swings in intake, bunk-reading confusion, and a big potential for lost milk. Using the dry matter pounds entry column in your on-farm feeding program is the best way to obey this rule. Be sure your temporary diet has the same dry matter total as the current one, then add water until the same as-fed pounds are met.

When replacing protein I often use the Pearson Square. This odd mathematical trick is a perfect fit for replacing protein ingredients on a ratio basis. If, however, you have to go without a high protein ingredient like canola meal and you don't have another ingredient like soybean meal on the dairy, good luck. It will likely not be possible to supply the same protein until the next load arrives.

Starch is a similar difficulty, since many herds only feed one high starch ingredient. I have had clients during extreme winter weather call and say they are out of corn. This one is pretty tough and you will likely have to punt on keeping starch levels the same in a lactation ration.

So far we have discussed the crucial nature of replacing dry matter pounds correctly and the unlikely potential to replace all protein or starch during an outage. The good news is that corn and protein meals are the least likely ingredients to have supply problems. With more unpredictable ingredient supplies from things like wet brewers, wet distillers, wet beet pulp and whey, using some quick math will usually get the cows fed.

The last goal is to think about the physical form of the ingredient being replaced. This effort centers around something we all know about: particle length of diets. Formulation and processing of roughage as a measurable in a diet is just as important as energy, protein and fat levels. So if an ingredient must be temporarily replaced, it is important to use an alternative with similar particle size.

Don't forget the difference and similarity of physical size versus uNDF content. Matching uNDF content in a current and new diet is probably more applicable to longer term ration changes. Giving credence to physical size is not to be forgotten in an on the fly short term change.

For example, if you run out of wet brewers and replace it on a protein basis with corn and soybean meal, you will end up shorting the cow on some physical fiber. This could result in rumen health problems and increased rate of passage.

Likewise, if you can't get to the corn silage pile due to mud, replacing that ration space with alfalfa hay and ground corn will add more long and fine/powdery material to the TMR that could result in problems for the cow. This concept is tricky and requires some thought to make a wise replacement.

A couple of general directives to tie a bow on this topic:

First, try to change as few ingredients as possible to get through a short-term outage. In my early days as a nutritionist I would send a totally new diet that best met the current nutrient supply without the missing

ingredient. In this case, every ingredient moved to make the best ration on paper. After more experience, I try to change as few things as possible even if nutrient supply is not exactly replaced. Of course, it depends on the length of time for the temporary ration as to the best approach.

Remember to change back

Second, don't forget to change it back! We have a process in our consulting group that we call ration quality control. In this we regularly check rations in feeding programs to be sure we are all on the same page. We do find things from time to time that had their start in what was intended to be a short-term change that no one remembered to change back.

This effort of ingredient replacement keeps us on our toes. It is the least disruptive when thinking more about the cow and less about the nutrition model and every detail available there. At times we just need to get cows fed; using good cow sense is probably the best approach. When you have to lean one way or the other, always lean in the direction of cow health. Regaining some short term losses in milk flow is much better than dealing with health issues.

Communication is the key in keeping this part of the dairy in the best-in-class category. Explain to feed suppliers the great value of a heads-up, even if it's just a few hours beforehand. Also, have plans in place for things that have expected supply issues. A standard replacement plan for something like wet brewers grain is just good business.

Lastly, a good nutritionist will be more than happy to help with this on a Sunday morning or even Christmas Day. Don't make a hasty change that can have bad repercussions when you really should pick up the phone and make a quick call or text.

Taking time to plan for these disruptions will pay dividends and will insure that, even with a missing ingredient or two, you are still 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.