Premixes – love 'em or hate 'em

by Steve Martin

DAIRY producers have strong opinions on many subjects, one of which is using premixes for TMR rations. As commodity barns have increased in size and number of bays, building rations in a TMR mixer has become increasingly complicated. But at the same time, high expectations for loading accuracy continue for feeders.

As a formulator, I often find that the inclusion of a small amount of an additional ingredient seems like the best ration solution. At times it is to save a few cents of cost. At other times it is to meet a particularly challenging nutrient requirement.

But what seems easy sitting behind my computer may be a real challenge for a feeder at 5 a.m. the next morning, who will have to load a too-small amount of an ingredient, and maybe even in driving rain or a snow or windstorm.

Using a loader bucket that can hold a few thousand pounds, the feeder is faced with taking a small partial scoop and slowly trickling it into a large mixer, while closely watching the scale. The result is often overfeeding the ingredient. And these low feeding rate ingredients are often much more expensive than others.

Be careful

The potential of over-feeding low-inclusion rate ingredients can either be an actual negative to the diet or, at best, a costly mistake that can overwhelm the positive impact of adding them in the first place. One way to counteract this problem is to combine lower-inclusion rate ingredients into a premix.

It may sometimes be best to have a feed company do this and have it delivered to the dairy. This allows for accurate mixing, negates the need for long-term inventory positions on what are often expensive ingredients, and reduces shrink. Dairymen, though, often want to buy them direct and take full advantage of their buying power.

Many ingredients that are easily combined with mineral-based formulations are often quite low in feed rates per head and for sure belong in a delivered blend. But on large dairies, when ingredients exceed one pound per cow they often arrive in truckload quantities. This is where the real challenge begins.

Dairy producers usually either like or don't like premixes, and changing anyone's mind is pretty tough. There is no blanket right or wrong answer here; it depends on many factors.

I hear two main reasons why people use premixes: improvements in both time efficiency and loading accuracy. A premix advocate might simply say that his feeders finish the day sooner and are able to be more precise in loading ingredients. So what are the dynamics in place for these claims?

The issue of saving time will create an argument between the supporter and detractor that could go on for hours. I have clients who say premixes save them time, while others say it is exactly the same. "You have to load everything twice, how could that save time?" say detractors. "Yeah, but what about partial buckets?" is the response of premix users.

The issue of saving time may be complicated by several details like number of ingredients, size of the feeding area, bins versus bays, etc. I will say though, that the "partial bucket" point is a good one. Just like one can't deny the "mixing these things twice" argument is true, the reduction in partially full loader buckets is true too.

I've been paying special attention lately to the various loader buckets I see at my clients' operations. They range from front-end loader buckets on farm tractors to normal size buckets on commercial loaders, and from tink roll-outbuckets or push-out buckets to farm-modified super-wide buckets. No matter how big or small they are, we are asking the feeder to use it as a precise hydraulic instrument to hit the target weight.

When using a premix, there has to be fewer partial buckets to return to the commodity bay each day. If the scale is calling for 1,150 pounds of an ingredient, a skilled feeder, even though he can't even see the amount of material he just scooped up, heads to the mixer to dribble in this exact amount. After achieving the desired weight into the mixer, he returns to the bay to drop the remainder.

Even the best feeder cannot avoid this step and still be accurate in loading. If this ingredient is included in a premix, the amount needed will likely be more than one full bucket. So one or two full buckets can be quickly dumped and the more tedious partial bucket will be done last.

Full buckets save time

The point is that instead of having this tedious partial bucket for every load of feed made in the day, it only happens once when making the premix. Then throughout the day when this blended premix is loaded into the mixer again, but this time for feeding, there will be a higher percentage of full buckets due to the higher feed per cow of the blend.

So the partial bucket issue is likely a time-saver and an accuracy enhancement. It's the partial bucket that is the inefficient activity and the one with the opportunity for a loading accuracy error.

The time saving part of this equation is the comparison of time saved with more full buckets and time spent loading things into the mixer twice, versus the additional time to mix the premix and then unload it into a bay. Maybe these things cancel each other out. Then we are left with the issue of accuracy. I think the premix users win on this one.

What about other potential gains that are not related to the feeders but to the cows? I had a client tell me recently that using a premix helped his feeder get the first load out earlier in the morning. Of course, moving up the starting time can do the same thing, but the point is still valid. No matter if it is getting a load out for a good lock-up for breeding or to beat the high pens back from the parlor with fresh feed, having the premix ready to go makes the task easier.

As a formulator, it is easier to do a ration reformulation if premixes are not involved. If a dairy has multiple rations, such as fresh, high and late lactation, you have to try to find a premix that will accommodate all of them. This is not an easy nor perfect process. It is always easier, better, and usually cheaper to build a ration with full flexibility in ingredients.

If I build a premix for the high ration that feeds most of the cows on a dairy, then I am often tasked with also pushing that fixed ingredient blend into the fresh and late lactation rations and still meet their nutrient goals.

There are ways around this, such as building the premix for the high and then adding a few things to it for the fresh ration and simply using less of it and more roughage in the later lactation version. Or I can build a more basic nutrient-filled premix for the late lactation cows and add the goodies as needed to the high and fresh cows.

Whichever approach I choose, it is usually the case that using a premix built for another ration will likely add a few cents of cost. It is almost always cheaper to meet nutrient specifications for differing groups with the full menu of available ingredient choices. So there is a give and take here as well.

If you decide using a premix is the right decision for you, what ingredients should be included? In general, I target ingredients that have feed rates of five pounds or less per cow. This often includes things like protein meals, cottonseed, molasses, vitamin/mineral supplements, distillers, gluten, etc.

In my view, adding higher feed rate ingredients like corn may not be necessary. If the inclusion of corn is seven pounds or more, it is likely a good ingredient to add alone. When clients who had previously used corn in premixes removed it, they liked the reduction in the number of premixes needed.

If the total of all low-inclusion ingredients is around 10 pounds, including corn into the premix would nearly double the premix volume and thus require the feeders to make them more frequently. When adding this much extra material, and thus mixing it twice, the time efficiency may be lost.

Also works with roughages

Although premix blends are primarily focused on low-inclusion rate grain-type products, they are also a great help in adding low inclusion roughages. Oftentimes, less than one pound of straw in diets is a great nutritional help. But such a low amount of this low-density, bulky material is very difficult to add accurately in each feed load.

Including straw or other types of bulky forages in premixes not only helps with accuracy, but also aids in further processing without the need to grind. In addition, I always feel better about the complete blending of premix ingredients when a roughage like straw, cottonseed hulls, or grass hay is included. It drops the density of the mix and gets back to the type of blend that modern mixer wagons were designed to mix.

If you believe that 30,000-pound loads in a twin-screw mixer wagon are the same as what is at a feed mill, you are mistaken. There is a reason that feed companies use 2-3 ton batch-sized ribbon mixers. I don't think you can meet any feed tag specs with your twin-screw. Putting some roughage into them helps, although how much I am not sure.

So what is the best answer for your dairy? I think this truly comes down to personal preference – and perhaps just giving it a try. No matter what system you use today, considering the other option might be a good idea.

Maybe your non-premix approach is costing you in the form of long days for the feeders and poor loading accuracy. Or perhaps your dedication to premixing is adding cost to some rations, or resulting in rations that could be a little better if they were not bound to a premix designed for another set of cows.

It could be a good idea to get the opinion of your feeders on this subject. A quality feeder probably knows the logistical details better than you, and that conversation, plus some critical thinking on the subject, might insure that you are truly feeding for the bottom line.

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