



by Steve Martin

## The fun in feeding heifers

THE roles and work activity of today's dairy nutrition professional are fairly broad. Working in cooperation with others, including the vet, accountant and perhaps an agronomist, there are many subjects other than nutrition that a consultant must be skilled at. Some have become experts in forages, and the finer points of making good silage. Others have developed great skills in collecting and analyzing the large amounts of data generated by a dairy, or in growing baby calves.

But in view of these expanding skills, we still need to be basic in diet formulation because it is what we need to do best. In addition, our formulation skills need to involve advances in both biology and economics.

When I look back at the past couple of years, my primary growth area in nutritional knowledge has been older heifer diets. A few years ago I made a change in nutrition formulation models – and then spent much of the next year learning the intricacies of using that new tool. With several new nutrients to watch, more details on nutrient interaction, and several new digestibility rates to target, it took time to realize its full value.

After the lion's share of that effort was complete, I wondered what would be the next growth area. It is funny how things just seem to fall into place, because at about that time a client came to me with a question: How can we feed heifers to a "tight" bunk and reduce feed cost? At the time I didn't know how much fun the answer to that question would be.

This is not a new question or topic, and there has been data collected at several respected dairy research universities. However, there was and still is more than just a little skepticism from many producers. I recall a session at a regional nutrition meeting about five years ago when research from Penn State was presented. The take home message for me was that they successfully raised three drylot pens of heifers that shared one feed lane. Quick math would tell you that those heifers had access to feed for only eight hours per day. In broad terms, the rations were more concentrated (included less

low-quality roughage) but delivered the same nutrient quantity as their more bulky counterparts.

### No wild interest

Not long after the conference I wrote about the subject, and even included some economics on potential savings. The response? Crickets.

In those years, roughages were plentiful in the Southwest. Cotton burrs/gin trash was easily found and economical. More and more corn and milo stalks were also being baled for feeding. Times were soon to change, though, as rain refused to come in following years. After multiple seasons of record-breaking low rainfall, heat and wind, obtaining low quality roughages became very challenging.

During those dry years we fed a lot of bedding to dairy animals. All sizes and shapes of tub-grinders were working overtime to process roughage. French-speaking truck drivers were even hauling various types of hay all the way from Canada to

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points in the Southwest. In that environment there was a bit more interest in how to conserve roughages, and heifer diets were a popular place to do it. Skepticism, however, was still the predominant response.

One of the benefits of a dynamic nutrition model is the ability of the math inside to consider feeding levels, rate of passage, and rate and extent of nutrient digestibility. Could these tools be used to build more concentrated heifer diets and still develop a strong, healthy springer that is ready to calve and become a profitable milk cow?

The formulation program did have a strong heifer model and has served well in this effort. Using more precise measures for energy and protein, and doing it in a dynamic environment, allowed accurate targeting of nutrients for heifers. The results of those efforts have since been repeated in numerous locations with a variety of roughage sources.

The joy – and the pain – of working with heifer rations is the plethora of



options that exist for correctly formulated rations. Lactation diets are much more restrictive, often due to limited soace in the diet. The heavy milking cow has needs in excess of her ability to consume adequate volumes of feed. The result is a very tight formulation where every ounce of the diet is important.

Heifers are on the other end of that spectrum. Every heifer diet formulated has many other potential solutions that are just as good. At times, factors like inventory, trucking schedules, etc. end up driving which of those results is truly best for the farm. In fact, all of this flexibility is often a frustration due to the indecision on which solution is best. Some choices are truly arbitrary and frequent reformulations occur mostly due to non-nutritional factors.

Could this flexibility, though, really be a significant economic advantage?

As an undergraduate student in college, I took a poultry production class. I remember only a few things from it. I am sure some of the details are questionable, but I seem to recall that when feeding broilers, the amount they consume in a day is variable depending on economics.

If a protein source like soybean meal (SBM) is priced advantageously, the intake level may be 105 percent of normal. If SBM is expensive, then highly concentrated pure amino acids ingredients could be used. And since they deliver the same nutrients in less space, the intake of the ration may be 95 percent of normal.

### Learning from chickens

This sounds a little crazy to a dairy nutritionist that mostly lives in a world where lactating cows tell us what they are willing to eat, but what about heifers? Perhaps we can think of them like a broiler and tell

them how much we want them to eat, and when it's gone it's gone!

All these years later I am not even sure if I remember the poultry nutrition principle correctly. But I know for sure that applying the idea to dairy heifers is spot-on.

The goal in the heifer feeding approach has been to feed less and spend less. This is good, but how much less? Do growing heifers even have a roughage requirement? Will lower roughage rations result in first lactation animals that don't have good capacity for high intakes?

Questions like these have been addressed by researchers and by following heifers through their first lactation the concerns seem to be unfounded. Likewise, our personal experience would indicate no cause for concern; just a cheaper heifer at freshening. And as for how much less intake, it depends on the values and availability of roughages and concentrates in a particular situation. A good nutrition model will answer this for you.

Like many things in the world of nutrition, you need to take the principles derived from research, add to them your own personal spin, and give things a try. The unique aspects of a particular farm, a different geography, and variable roughage sources might result in a bit of a learning curve. But by using sound ideas from smart people, a good formulation model, and some keen observation as you go, the chances for success are pretty good.

I always say that using good cow sense is as important as good forage analysis and a strong formulation program. And that is true. I must admit, however, that some of the realities we have discovered feeding heifers to a multiple hours slick bunk have been a bit of a surprise; a bit counter-intuitive to our cowboy common sense. But, the results are in and all is good.

The point is to take the flexibility in replacement heifer diet formulations and use it to our advantage. As long as a few basic management principles are in place, a slick bunk doesn't hurt a heifer. I promise you that when you tell heifers how much you want them to eat, and not the other way around, you will truly be feeding for the bottom line. **WEST**