



by Steve Martin

Build a chart for your heifers

EVERYONE looks at data and information differently. Some like nice tables with straight columns, perfectly formatted and filled with rows and columns of digits. Others prefer a nice graph with multiple colored lines, bars, etc. In our world, this data is about cows and feed.

I have been formulating diets for dairy cows, and thus dairy heifers, for 25 years. In all of them I have looked at graphs to monitor replacement heifer growth performance. I may be in the minority here, but heifer growth graphs have never resonated with me. In fact, if you really want to make my eyes glaze over, put multiple lines on the graph that represent different percentiles of growth. Maybe I'm the only one. Or maybe not. Perhaps there are others who look at heifer growth data and want a table instead of a graph.

I love the term "eat the elephant one bite at a time" – meaning attack large tasks by dividing them up for both approach and analysis; decide what the goals are, break the process into logical groupings, and then work and evaluate each grouping on its own. To make the process even better, build a chart to describe the whole thing!

This is how I look at heifer growing metrics. Doing it this way is how I can best help our clients in developing and evaluating rations and growth performance for their dairy heifer programs.

Set your bookends first

When applying this to growing heifers, the first question is, what do you want heifers to weigh at calving? By adding an average birth weight and then age at breeding, you have the bookends of the project. I then break it into logical age groupings that fit a particular farm. There are no right and wrong ways to break this process into time periods and they don't all have to be the same length.

For this discussion, let's assume an average birth weight of 85 pounds for Holsteins, and the goal is for heifers to calve at 23 to 24 months (700 days) of age. With just this information we know that we need an average daily gain (ADG) of 1.88 pounds.

Now how should we divide and conquer? The first and most logical break point is when the heifer leaves the hutch. If a program is pretty simple, the next break would be at breeding, with the final group being pregnant animals. In this most basic setup you have 60 to 90 days in the hutch through a post-weaning stage, 330 days till breeding, and 280 days as a pregnant heifer.

But there probably needs to be a couple more breaks to really make a logical progression of diets. One of the great opportunities with successively older groupings is that you can begin to "cheapen" the ration as animals grow. The older the heifer, the more moderate or even lower quality ingredients she can use for growth.

More groups, more targeted rations

In addition to different ration approaches in various groupings, there may be differences in pen size and density, housing, pasture, lockups, pipe-rail, etc. When we divide these groups accordingly, we can actually best formulate the ration to match the situation and achieve the target ADG.

When presenting an entire heifer development program ration set and printing it out on one page, it looks good to see the progression of the diets as they feed a growing animal. The rations would increase in intake amount and decrease in nutrient density as animals get older.

If you fully detailed this, the youngest ration would only have milk, the next ration would be milk plus a calf starter, then calf starter alone, followed by maybe a calf grower and a touch of good quality hay. Next, their "1st true TMR" often looks



Dairy Heifer Growth Chart

grouping	body weight (pounds)			age in days			ADG	lbs. DMI	% BW
	in	out	avg.	in	out	total			
hutch	85	195	140	0	70	70	1.57	5.0	3.6%
weaning pen	195	250	223	70	100	30	1.83	7.8	3.5%
1st heifer TMR	250	340	295	100	150	50	1.80	10.0	3.4%
grower TMR	340	600	470	150	290	140	1.86	14.0	3.0%
pre-breed TMR	600	700	650	290	345	55	1.82	17.0	2.6%
breeding TMR	700	800	750	345	405	60	1.67	18.0	2.4%
pasture	800	960	880	405	505	100	1.60	19.0	2.2%
springer TMR	960	1,360	1,160	505	700	195	2.05	23.0	2.0%
close up TMR	1,360	1,400	1,380	700	721	21	1.90	26.0	1.9%

average daily gain: 1.877 lbs. 721 total days = 23.6 months

about like a nice milk cow ration. The last ration fed to the oldest pregnant heifers would have the highest intake amount and likely include moderate to lower digestibility bulky ingredients.

One of the changes in the way we have fed many heifers over the past few years has been how much they eat. Some of this has been what you would call limited, or better yet, target-fed rations. Grouping cattle accordingly has allowed us to better target not only formulated nutrients in the diet, but also the amount fed. Even when not using a limited-intake approach, we still like to tell the animals how much they will eat and not the other way around. Using information on weight and age we feed accordingly, and by watching the performance of that particular grouping we can gauge success.

This brings me to a topic that causes angst for some heifer growing operations. How do we know if we are hitting the appropriate weight goals? In addition, if we plan to script the amount fed then we had better know pretty well what the heifers weigh. It is easy to weigh the bookends and evaluate regularly, but if you end up missing the goal on some springers it is obviously too late to fix them.

The basic bookend information is good and should be captured and evaluated. Gathering a few weights along the way will make it much better, although it is never easy and often inconvenient.

For sure, don't miss the opportunity to capture that data every time heifers go on a trailer. A net weight and a few ear tags to get a birthdate should also be easy enough to jot down on a scale ticket. The gold standard would be a tracking system with scheduled check weights to keep up with age and weight data.

Once I have divided up the process and have goals in mind, I build a table to describe the growth stages. In it are starting weights, ages, ADG, in-

takes and ending weights. This is the guide I then use to be sure the diets are built to match these measured realities and included movements in nutrients to meet any un-met goals.

The example table above shows a heifer program with a calving age goal of 23 to 24 months, and it even includes time for pasturing the cattle. Please note details like lower ADGs occurring when heifers are being bred and when they are on pasture. Realizing this, ADG in the springer ration needs to be increased, otherwise final pre-calving weight will not be reached. The start-to-finish ADG goal in this example is 1.877 pounds.

Every operation needs a map

Every dairy or heifer raising operation should map out their process in some similar fashion. There are opportunities to have flex in the system for differing situations year to year or seasonally and still end up at the same place. The goal is to grow a well-developed, correctly sized heifer to enter the milking herd.

Breaking up this process into bite-sized pieces offers many advantages to adjust as needed to meet final goals. To make the process work best, some intermediate weight measures need to be gathered. That part is not easy, but it greatly increases the opportunity for success.

Heifers are the future of every dairy operation, and are 100 percent of the business for a custom grower. Excellence in this area increases the opportunity for success of both businesses. If you are only looking at the bookends of birth weight and pre-calving weight, there is no way the management in between can be optimal. Using a table as is suggested here, or a similar thought process, is a great exercise that will help make sure you are truly feeding heifers for the bottom line. **WEST**

The author is the founder of Dairy Nutrition and Management Consulting LLC, which works with dairies and heifer growers in Texas, New Mexico, Kansas, Colorado, Washington and California.