



by A.F. Kertz

Balance calf feeding options

IN PREVIOUS articles (November 2016 and February 10, 2017), NAHMS 2014 data were used to illustrate methods popular on U.S. dairy farms for feeding liquid programs and transitioning into forages (Figure 1).



Kertz

Let's look further into NAHMS (National Animal Health Monitoring System) data showing when dairy farms, by size, first offered water, starter, and forage. Smaller dairy farms waited longest to feed water and starter but were quick to begin feeding forage. In the February 10 article, we explored the negative effects of feeding forage sooner.

At a recent dairy conference, a speaker recommended not feeding starter at all for the first two weeks and maybe not at all until after 3 to 4 weeks of age. I could not disagree more.

Granted, he was talking about situations where 12 or more quarts of milk replacer were fed during the first two weeks via an automatic feeder. But as seen in the NAHMS 2014 data, this situation only applies to about 9 percent of all farms that recorded feeding 10 or more quarts daily.

The problem with not feeding starter sooner is that it simply delays when and the rate at which starter intake occurs. That in turn impacts rumen development and when calves can be weaned.

Avoid the double whammy

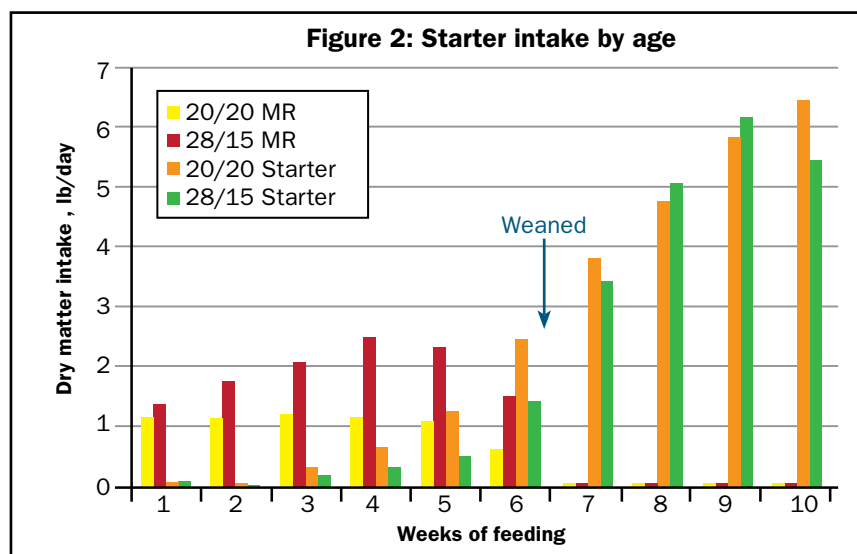
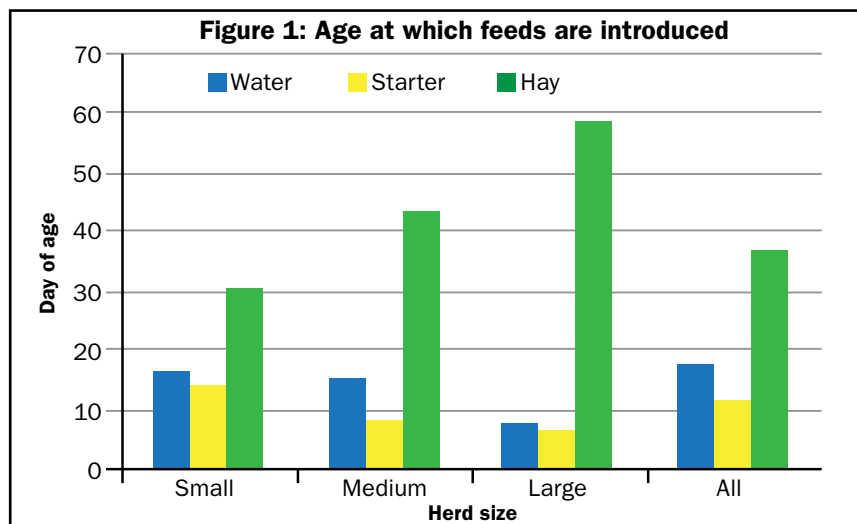
Let's think of this as a process with a number of key variables and an end objective. The process is the conversion and transition of a monogastric newborn calf to a functioning ruminant by the end of about 2 months of age. Additionally, the goal should be to double a calf's birth weight in this same time frame.

That requires liquid nutrition for the calf's maintenance and growth and dry nutrition in a form that not only empties into the rumen but helps develop its function, too. As is often the case, a happy medium may be the best fit.

If you feed 12 quarts of milk or milk replacer (about 3 pounds of solids), you will have good growth and little starter intake during the first two weeks or so. But what do you do next? Not only is the starter intake low, but such high milk solids intakes have been shown to reduce starter digestibility, too — a double whammy!

I went back and looked in detail at a study done at the University of Illinois in which I was involved and formulated the texturized starter for. A

The author is the principal in ANDHIL LLC, a St. Louis-based consulting firm.



proverbial 20 percent protein/20 percent fat milk replacer (MR) was fed at 12.5 percent solids versus a 28/15 milk replacer at 15 percent solids. The 20/20 MR was fed at a fixed rate, 1.25 percent of birth weight, while the 28/15 was fed at 2 percent of weekly body weight after the first week.

The weaning age was pushed down for both MRs to the end of 6 weeks of age to make it more challenging to the calves. During the 6th week, one-half of MR fed was removed with full weaning after that week.

Note the inverse relationship shown in the graph by weeks with more MR fed resulting in less starter intake (Figure 2). But also note the progressive rise from week to week in starter intake of both MR treatments. In fact, those intakes approximately doubled from week to week. While starter intake lagged behind for 28/15 versus 20/20, it caught up within the two weeks after weaning.

This illustrates the importance of the weaning transition period, the two weeks before and two weeks after weaning. We also know from studies with cows that it can take two to three weeks for rumen tissue and microbial populations to adjust to changes in diet — such as during the transition period before

and after calving. With calves, they should have two to three weeks of starter intake over 0.25 to 0.5 pound before full weaning.

In this study, 20/20 MR solids intake was about 44 pounds total with 34 pounds starter intake through weaning while the 28/15 treatment was about 80 pounds MR solids intake with about 18 pounds starter intake. This was a similar relationship as was seen in a recent Penn State summary of 21 treatments from nine studies in which each incremental increase of a pound of MR solids dropped starter intake by about 2 pounds.

Another factor is that the greater the milk or milk replacer daily intake, the longer it will take to improve starter intake over two to three weeks to have good functional rumen development and weaning transition period.

That also brings in another factor in this process. Water intake is critical for starter intake. In fact, calves drink about 4 pounds of water for every pound of starter they eat. Limit water intake and you will limit starter intake and growth, too. So begin early feeding of water and starter, preferably a well-texturized starter; and wait on feeding forage until after 2 months of age. 🐄