



by Steve Martin

## Back to the future for dairy records?

EVERY industry has a “keeper of history” whose job it is to remember the past. Dairy farming is rich in heritage and tradition and perhaps the historians of our industry are the state or regional Dairy Herd Improvement Association (DHIA) organizations. These groups have been working to “improve the herd” for more than a century now, as indicated by the “I” and “H” in their names.

We often hear that history seems to repeat itself. It seems things do go in circles or cycles, and I see another example of that in our industry’s interest in collecting and evaluating dairy records. Are we circling back to the century-old approach of collecting and using production records on dairy farms? The combination of an old records approach, but with 2017 technology, could be very interesting.

The first DHIA was organized in Michigan in 1905 with the help of Michigan State University. It was an effort inspired by similar activities in Europe, where dairy producers had cooperated to share efforts in collecting and summarizing production information on their cows and herds.

They had several goals, but all were focused upon improving genetics, evaluating economics, and detailing various management techniques. The DHIA effort soon spread across the U.S. and was based at land grant universities, whose charge was partly to improve agricultural practices in their respective states.

### Long hours, many miles

Measuring on-farm dairy records was a daunting task and required milk testers to travel their states visiting dairies. Not only did they weigh or measure milk production, they also recorded information on management, nutrition and reproduction. This information was then summarized and delivered back to the dairy farmer some days or weeks later.

I grew up in an agricultural family, although not around dairy cows. But my heritage does intersect with the dairy industry. In the late 1930s my grandfather was one of those traveling milk testers for Alabama DHIA. His route was in west Alabama and he would make week-long trips to visit dairies in that part of the state.

Before his recent passing he would share stories of visiting dairies, where he would stay in the farmer’s home and enjoy meals with the family. In the style of a bygone era in the Deep South, he even wrote in his memoirs about not always enjoying the unusual food prepared by what he referred to as “Yankees” and even some “foreigners.”

My grandad’s days were those of the Babcock test and the first efforts to quantify the solids content of milk. Processors were beginning to learn about butter and cheese yield, and that as solids content of the milk



varied so did their profitability. The age-old trick of putting a water hose in the milk tank to improve farm income was thus discouraged and could be tracked by at least measuring the fat content.

Dr. Babcock’s tester could now even be used on-farm by the army of DHIA testers to begin to think not only about how many pounds or gallons an individual cow produced, but how much butterfat. I wonder if my grandfather used this device on his testing visits. I wish I could ask him about it now.

In those days everything was measured on an individual cow basis. I bet many of those records even had the name of the cow, but for sure an ear tag number.

Cow bloodlines gained traction and the dairy cow improved overall. In addition, test day data could be used to make culling decisions when also looking at the cost of feed and a cow’s reproductive status. All the necessary information was at hand.

Moving from the early part of the century, dairies began to grow and benefit from economies of scale. Depending upon the region and style of dairying, some grew from 20 or 30 cows to the once-unthinkable mark of even 100 cows. In the West, herd growth was at a faster pace. As early as the 1920s at least one herd in California had eclipsed 1,000 cows.

These large dairies gained tremendous economic advantages and overall efficiencies. Although not without numerous challenges related to manure management, labor, feed procurement, and forage production, the momentum toward “bigger is better” was unstoppable. This was good for overall dairy economic prowess, but the concept of thinking about the individual cow was slipping.

The long-held approach to monthly testing every cow for production and components for a full day was

losing traction to the bulk-tank approach of measuring performance. By the 1990s many large dairies had stopped testing components and somatic cell levels on an individual cow basis. And instead of weighing all milkings on test day, they would just measure one and multiply by 2 or 3 as indicated by 2x or 3x milking. Some of them stopped individual cow testing completely.

My entry into the dairy nutrition business was in the early 1990s in Texas, when the race to milk more and more cows was in full force. Twenty-five or so years later, we have the opportunity to enjoy the economies of scale many dairy producers have achieved, while making a shift to once again look at individual cow performance records.

Is it possible to take the economic analysis we have developed to evaluate investments in feed, management, facilities, etc. on a herd basis and now apply them to an individual cow? The answer is yes.

### Have we gone full circle?

Most dairies in the West are paid not exclusively for milk volume, but for pounds of butterfat, protein and other solids. It is this reality that motivates us to measure these items on a per-cow basis and use the results to make economic decisions. This sounds a lot like my grandfather’s early DHIA efforts of the 1930s. I think we have made the circle back, but with 2017 technology we can even do it in real-time.

The use of per-stall in-line milk testers that not only tell us pounds of milk but also percent of butterfat and protein are ready for purchase. Using the current market estimated price per pound for butter, protein and other solids, we can calculate a daily milk income for each cow. And this is just the beginning.

In an effort to make an estimate

of feed cost based upon actual intake, there is technology such as facial recognition software and activity/pen location monitors. With this data, the software can estimate each cow’s feed intake and thus her feed cost. Now we have what we need to do a daily profit and loss statement on each cow.

To add to this plethora of technology, we already have fairly wide application of tools to measure numerous reproductive items, activity monitors, and rumination tracking. In short, we have the opportunity to know a great deal of information about each and every cow on the dairy. Our challenge is to be sure we make the effort to use this information to enhance financial results.

I should mention that this large amount of new technology won’t be retrofitted into most existing dairy farms’ infrastructure. It could be that new construction can take full advantage of every bell and whistle and, over time, the industry as a whole will slowly arrive at this new era of technology.

### String or pen sampling

In this arms race that is now dominating our industry, there may be a happy middle ground that nearly every dairy can achieve by taking just a few steps. An easy-to-do add-on is making a commitment to string or pen sampling if individual cow component data is not possible.

String or pen sampling setup is very simple. If cows are grouped somewhat by stage of lactation, reproductive status, breed, parity, etc. we can take a big step from simply using bulk tank components to calculate energy corrected milk or actual income per cow.

By adding string components to individual cow milk weights on a daily, biweekly or monthly basis, we can greatly improve our knowledge about income per cow. Most dairies have actual intake per pen data, so we can estimate feed cost and have a decent P&L idea for each cow. (In an upcoming column I will delve into the potential value of adding measured body weight to this calculation. The uplift is strong in my opinion.)

Regardless of where an individual dairy ends up using these new approaches in production measurement technology, the trend toward looking back more closely at the individual cow is happening. And that is a good thing. As we look toward further advancements in genetics, management and nutrition, all cows or types of cows may not respond with the same return per dollar invested. We need to be ready to capture and evaluate that information.

As a nutritionist, I love the potential of better measuring individual cow or individual pen performance. Having that evaluation opportunity as it relates to ration formulation and feed cost investments for our clients allows us to be sure we are feeding for the bottom line. **WEST**