Know Where You Stand: Helpful Benchmarks to Track on Your Dairy

By Erik Brettingen, B.S.

"You can't manage what you don't measure." An arguably overused but truly powerful statement. When evaluating dairies and looking for ways to improve on client farm successes, tracking performance over time and comparing to benchmarks can be very helpful. Tracking key metrics on your farm can help catch issues before they become big problems, identify the next steps to take toward increased profitability, and allow for successes to be celebrated when improvements are made. Crystal Creek® helps clients build reports and uses herd management software to monitor performance of key areas on farms. Lactation performance, economics, transition cow success, reproduction, and calf growth/health are the main areas that are beneficial to monitor.

Lactation Performance:

Energy Corrected Milk (ECM): ECM measures the amount of energy contained in the milk based on fat and protein levels and adjusts to a 3.5% butterfat and 3.2% protein. This is very important to differentiate from simply looking at pounds of fluid milk. For example, a herd producing 90 lbs. of milk with a 3.5% BF and 3.2% protein is making 92.25 lbs. of energy corrected milk. A herd producing 85 lbs. of milk with a 4.5% BF and 3.4% protein is making more ECM at 99.45 lbs. The herd making 85 lbs. of milk is producing more pounds of revenue generating fat and protein than the herd shipping 90 lbs. of fluid. Energy corrected milk is an important number to track/benchmark. Proceed with caution when comparing yourself to other herds. If your herd is moving in the right direction, that is a positive. Set goals based on past performance.

Pounds Solids: Total pounds of solids shipped per cow per day is very similar to energy corrected milk. This number can be found by multiplying the fat and protein percentages by the pounds of milk. For example, using the 85 lb. herd above, 85 lbs. X 0.045 = 3.825 lbs. of fat and 85 lbs. X 0.034 = 2.89 lbs. of protein. Then add the fat and protein together. This herd is shipping 6.715 lbs. of total solids per cow per day. This again is an important number to set your own goal and benchmark. Some of the top producing herds are making 7 lbs. of components per cow. This does not mean your herd has to ship 7 lbs. of components per cow to be successful. Find out where your herd is and work with your nutritionist to set realistic goals for improvement.

Component Efficiency: Monitoring pounds of solids shows the overall output from the cows. To get a more complete picture of performance, component efficiency should be measured. Use the following equation:

(Total lbs. components per cow / DMI) X 100 = component efficiency

The goal is to achieve a component efficiency of 10-12%. This monitors how well cows are turning feed into fat and protein. High Dry Matter Intake (DMI) is usually a great thing, but if the milk solids production does not come along with it, that is a sign of potential issues. Poor component efficiency (less than 10%) can be due to herd demographics if the lactating group is made up of a high percentage of heifers (over 40%) or if days in milk is too high. Many times though, poor component efficiency is due to issues with diet formulation and rumen health. Too much starch in the ration can inhibit rumen function, microbial population growth, and fiber digestion. When this occurs, the amount of energy and protein the cows actually digest from each pound of feed is not what it should be.

Economics:

Total Feed Cost: Total feed cost is simply finding how much it costs per cow per day to feed your animals. Total feed cost takes everything into consideration, meaning all home grown and purchased feed stuffs going to the cows.

Purchased Feed Cost: The purchased feed cost is essentially the total feed cost minus all home-raised feeds. This will be anything purchased from the mill, nutritionists, vendors, neighbors, etc.

Income Over Total Feed Cost: This powerful metric essentially measures the day-to-day profitability of

the dairy. Income over total feed cost is found by calculating the revenue produced in milk from each cow per day and subtracting the total feed cost from that. It is what you are making per cow after spending the money to feed her. Using the 85 lb. herd above as an example again, 85 lbs. of milk at $0.19/lb. is $16.15 per cow per day in total revenue. If it costs $7.50 per cow per day to feed this herd, that leaves an income over feed cost of $8.65 per cow per day. Because feed price and milk price are both able to dramatically change the final income over feed cost number, benchmarking income over feed cost requires looking at feed cost as a percentage of milk revenue. The brief table below outlines benchmarks for feed cost as percentage of milk revenue.

Figure 1

Benchmark	Metric
High Income Over Feed Cost	Feed cost less than 40% of total milk revenue
Low Income Over Feed Cost	Feed cost greater than 60% of milk revenue

https://extension.psu.edu/managing-income-over-feed-costs

Income Over Purchased Feed Cost: This number is calculated exactly as income over total feed cost but uses only purchased feed cost. Many times, this is looked at because it can be more of an indicator of cash flow. Total feed cost includes home grown forages that many times have already been made and are in inventory. They essentially have already been bought and paid for. The purchased feed cost includes the ongoing feed being bought to feed the cows. Again, using the 85 lb. herd above as an example, 85 lbs. of milk at $0.19/lb. is $16.15 per cow per day in total revenue. If the purchased feed cost of this ration is $3.50 per cow per day, that leaves an income over purchased feed cost of $12.65 per cow per day. Much like income over total feed cost, income over purchased feed cost must be benchmarked as a percentage of milk revenue. The brief table below outlines benchmarks for income over purchased feed cost.

Figure 2

Benchmark	Metric
High Income Over Purchased Feed Cost	Feed cost less than 20% of total milk revenue
Low Income Over Purchased Feed Cost	Feed cost greater than 40% of milk revenue

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Transition Cow Success

Transition into lactation has an immense impact on profitability. Without a proper transition, cows do not peak well, may not breed back in a timely fashion, and many times leave the herd too soon to generate a profit. The table below outlines key parameters to track that indicate how well cows are transitioning on a dairy.

Figure 3

Metric	Goal
Milk Fever	<3%
Displaced Abomasum	<5%
Retained Placenta	<5%
Metritis	<15%
Ketosis	<15% Sub Clinical, <5% Clinical
Sold and Dead Before 60 Days	<8%

https://www.vet.cornell.edu/animal-health-diagnostic-center/programs/nyschap/modules-documents/transition-cow-benchmarks

https://www.zoetisus.com/content/pages/Dairy/Dairy-resources/Documents/Dairy-Wellness-Outcomes-Benchmark-Audit-Performance.pdf

(Continued on page 4)

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(Continued from page 3)

Reproduction

Getting cows bred back efficiently after calving keeps days in milk down and helps maintain milk production throughout the year. Reproductive success or failure can also be a window into how healthy the cows are and how they transition. The table below outlines key parameters to track that indicate how well the reproduction is going on a dairy. There are many numbers that can be looked at, but these are some key measurements we watch:

Figure 4

Metric	Goal
Pregnancy Rate	>30% Note: Highly dependent on other herd management factors such as the Do Not Breed List
Conception Rate	>40%
Services Per Conception	<2%
Heifer First Service Conception Rate	>70%

https://www.zoetisus.com/content/pages/Dairy/Dairy-resources/Documents/Dairy-Wellness-Outcomes-Benchmark-Audit-Performance.pdf

https://calfandheifer.org/wp-content/uploads/2020/09/DCHA_GoldStandards_2020_En_WEB-final.pdf

Calf Growth/Health

Calf growth and development has significant impacts on productivity, longevity, and profitability of those calves when they enter the herd as first lactation animals. Tracking calf health and calf growth rates is a great way to put a report card on a calf raising program. When tracking the metrics included in the table below, you can be sure calves are being raised without excessive health events, they are meeting growth targets, and being bred at the proper maturity to maximize health and productivity in their first lactation.

Figure 5

Metric	Goal
Blood Total Protein	>80% of calves achieving 6.0 g/dl or above
Pre-Wean Scours Incidence	<15%
Pre-Wean Pneumonia Incidence	<10%
Pre-Wean Survival Rate	>97%
Pre-Wean Calf Growth	>85% of calves double birth weight by 56 days of age
Size at First Breeding	55% of herd's mature body weight

https://calfandheifer.org/wp-content/uploads/2020/09/DCHA_GoldStandards_2020_En_WEB-final.pdf

Tracking key performance metrics and economics can be very powerful. Knowing where you stand helps point out potential bottlenecks and open areas of opportunity. If you are curious where your herd is sitting with some of these key benchmarks or are looking for solutions to help achieve these goals, please consider reaching out to Crystal Creek® at 1-888-376-6777 to speak with one of our nutritionists about our nutrition and management consulting.

References available upon request.