Monitoring Herd Performance 2

Looking at average pounds of milk for the milking cows retrospectively can give you a context for your current average production. But to understand how the animals' level of production is changing we have to consider a bit more than just the average pounds of milk on a given day.

PLOT is a command in Dairy Comp that allows graphing the test day, information that is listed on the "Test Days" tab of a cow card. The default for the PLOT command is to line up the test day information by stage of lactation resulting in "lactation curves". The \R on the command reverses this position and lines the data up by test dates rather than by test day number so we can look historically at how animals have performed on different test days.

What's wrong with "lactation curves"?

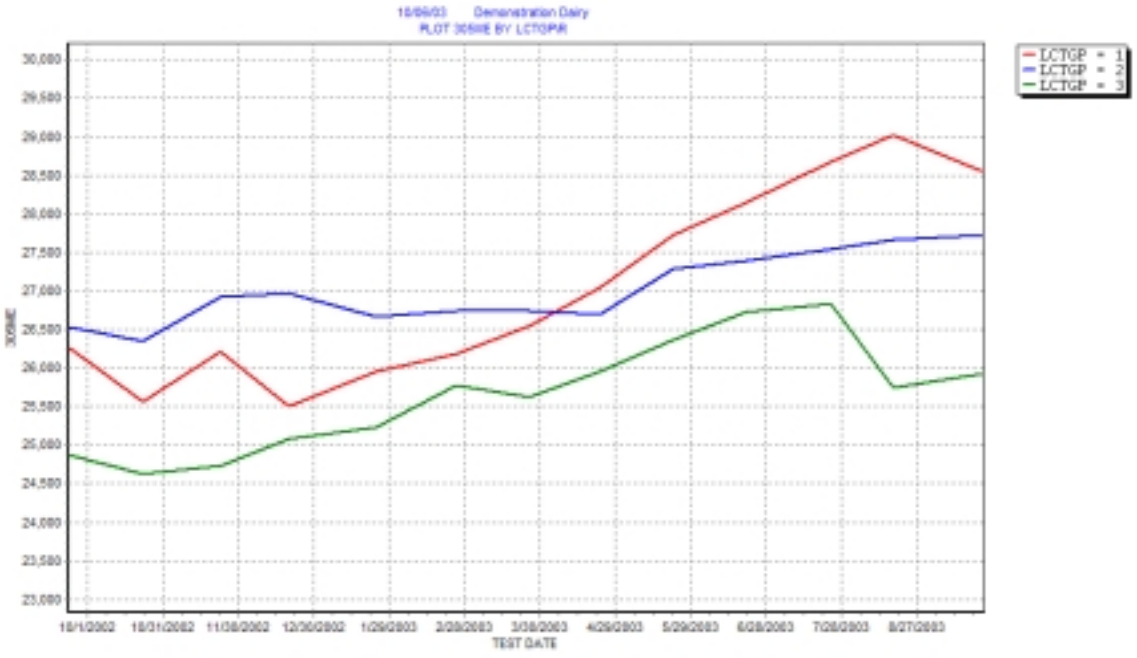
There are two big problems with traditional lactation curves. Lactation curves are made by averaging all of the first test day milk weights, of all the cows that have had a first test day in their current lactation. Then we average the second test day - for all of the animals that had a second test day in their current lactation, and then the third, fourth, and so on. Basically all animals will have a first test day in their current lactation, but only a few may have the 11th test day for their current lactation. When we connect the dots representing the average for each of the test days we are pretending that all of the dots are for the same animals. They are not.

The second problem with lactation curves is that we try to interpret them as though the herd's performance does not change through out the year. Some animals will have had their first test day in July and others will have had their first test day in December. We cannot average these animals together and say, "that average represents how the animals are performing now".

So how can we measure milk production?

A good way to attempt to account for monthly production changes while considering lactation numbers and days in milk is to look at the average "Mature Equivalent adjusted record" also known as the 305 day ME. The "ME" is adjusted for Days in Milk, age, and season of calving.

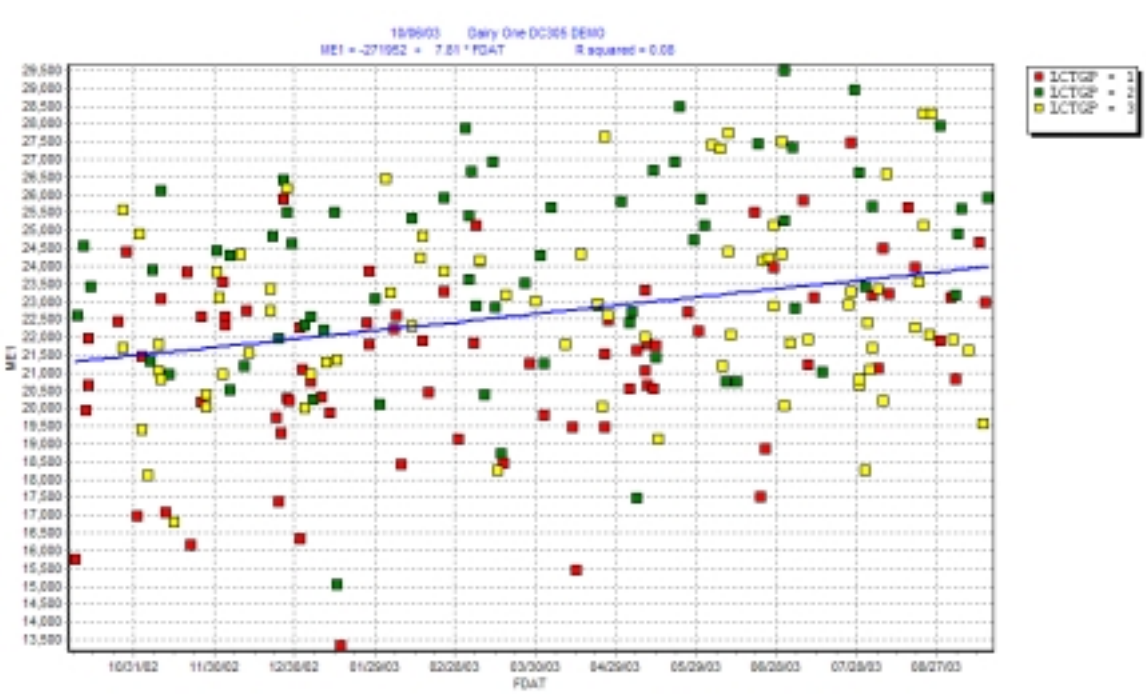
305 ME by Test Day and Lactation Group
PLOT 305ME BY LCTGP\R



In the above graph, the most current test day average ME is on the right side, and a year ago is on the left had side. The three lines represent the average "ME" for each lactation group for each of the last year's test days. The three lactation groups are first, second, and third and greater. The graph shows that animals are definitely milking at a higher level now than they were a year ago. The graph shows that the animals have improved through out the last year with only a couple of cases of production decreasing.

First Testday ME Projection by Fresh Date

How are cows starting their lactations? ME1 (also some times abbreviated FSTPJ) is the first test day ME projection. How animal's start their lactation is highly correlated with how they "peak", but we get to measure their "Start" up to two months before we will know their "peak". A nice feature of ME is that it accounts for Days in Milk, and helps us to compare the animals that were only 8 days in milk their first test, along with those that were 40 days in milk on their first test.



Each dot is a cow plotted against her calving date and "ME" projection. Animals most recently fresh are on the right hand side, and those that calved a year ago are on the left hand side.

This graph is a very good way to look at production change because it does not hide variation, includes cows which have been culled and shows current performance in thecontext of recent history, and even helps estimate a trend through the use of the regression line.

There are three different aspects of performance you can see with this graph.

First - Monitor the Level of Start Production

Are the dots (animals) on the right hand side of the graph, higher than those on the left hand side of the graph? The regression line helps us get a feel for this. The higher the dots, the better the start production, the greater their potential for the rest of the lactation.

Second - Monitor Variation

We want to manage for a reduced "spread" between the points. On this graph you can see that there is less variation in the production of animals most recently fresh and those that calved several months ago. The idea is that the more consistently animals are managed, the less variation there will be between animals, and the more likely we can change their performance by changing management.

Third - Monitor Sick Cows

Clusters of animals with very low first test ME projections help you get a feel for the number of cows who may be sick on their first test. Hopefully you are already tracking clinical disease in your fresh cows, but there may be significant incidence of subclinical disease that will not show up if you summarize your disease incidence but can be recognized as a cluster of poorly starting animals.

To run this in your Dairy Comp, or to have your Dairy One Technician run it for you, use the following command. GRAPH ME1 BY FDAT LCTGP FOR FDAT>-365\BR (B includes both dead and alive animals, the R invokes the regression line). The "FOR" statement of FOR FDAT>-365 restricts the graph to animals whose Fresh Date is in the last 365 days. The line that runs through the graph is a regression line. This line is a "best fit" of all the animals on the graph and helps to summarize the

trend. Be sure to include animals who have been sold since calving or else we would be substantially biasing the scatter plot by systematically removing all of the animals that were sick and had to be sold.

If your Cowfile does not have the item ME1 or FSTPJ you can create it. The item ME1 is an Item type 86, Test Day 305 Milk, first value is 1, to point to the first test, and the second value is 0, to not "ME" the number as it is read into the Cowfile already ME adjusted. Call the support line if you would like help setting this up.

If you have questions or would like more information, please contact your Dairy One Farm Service Technician, or call 1-800-344-2697 extension 3 (email: dmr@dairyone.com)