

Measuring Udder Health with Somatic Cell Counts and Dairy Comp 305 Reports

If you use a Dairy One DHI service it is likely that you want Somatic Cell information on your cows. If you do not use Dairy One services now, one of the most likely reasons you will begin is to get Somatic Cell information for your cows. Even dairies that maintain low Somatic Cell counts in their tanks use Somatic Cell results for a sensitive monitor of herd infection dynamics and to identify problem animals.

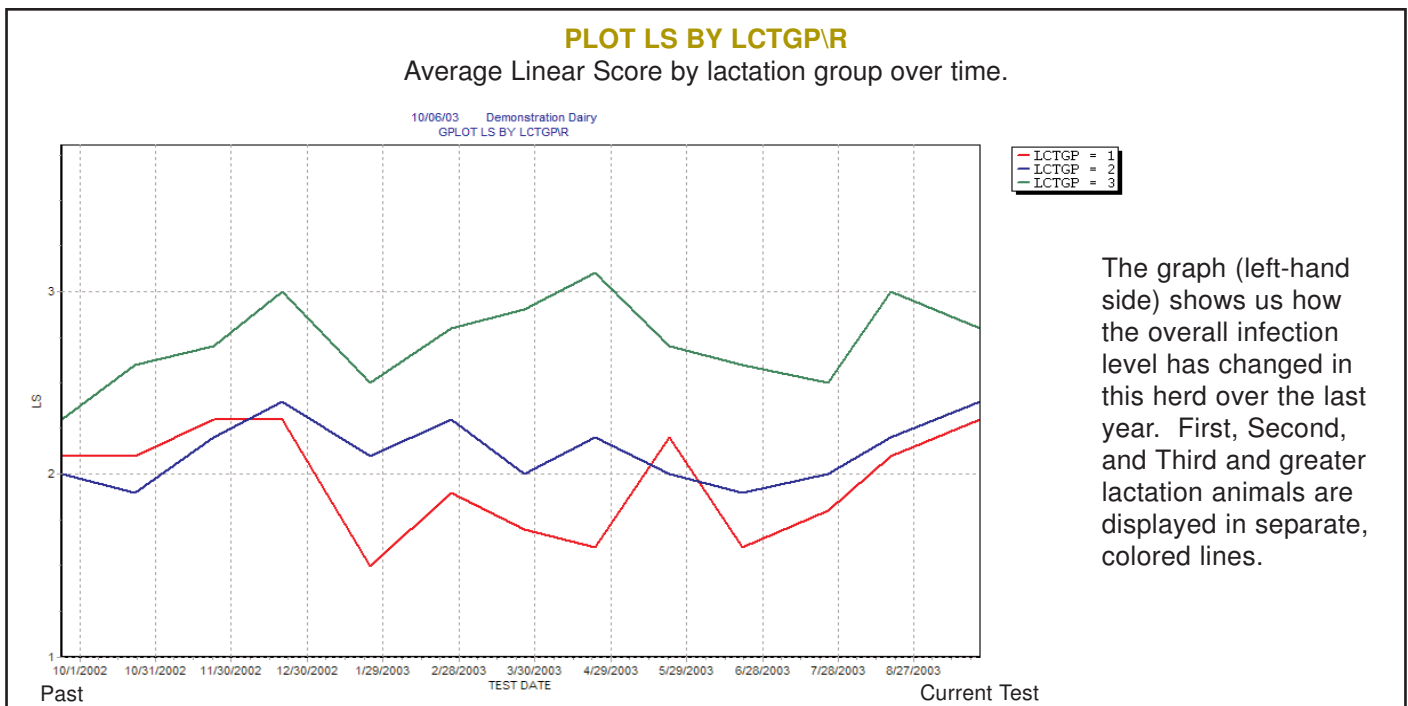
Mastitis is the most expensive disease our dairies experience. Because of the high costs associated with mastitis, we want sensitive measures that can warn us before the trouble becomes obvious.

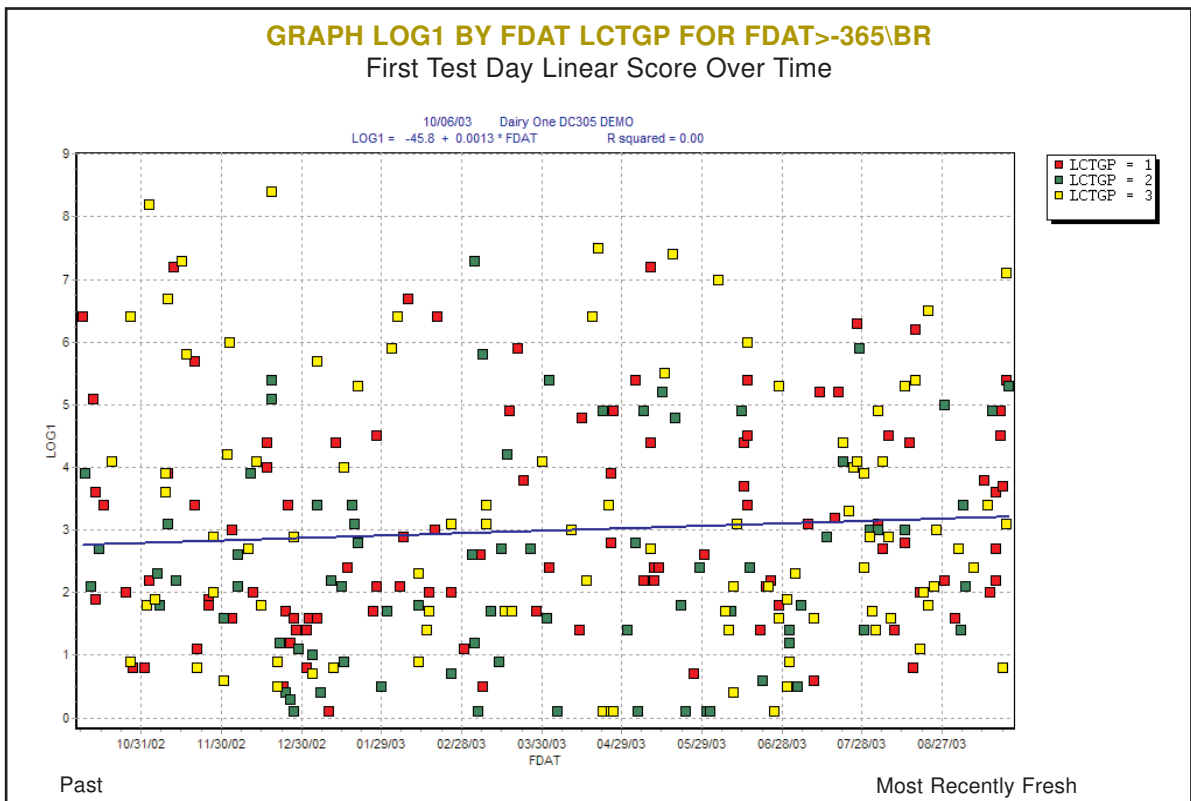
Somatic Cell Count Principles

When you use Somatic Cell information consider these nine principles.

- 1) Higher Somatic Cells means more mastitis. If we are talking about the average Somatic Cell of many animals, higher counts will mean more animals are probably infected. If we are talking about an individual cow, the higher the counts, the more likely she is infected.
- 2) Use two different measures for two different jobs. Use Somatic Cell "Linear Score" to manage cows, and raw Somatic Cell Counts to manage bulk tanks. (The average raw Somatic Cell Count can be greatly influenced by a single, very high count cow, while the average Linear Score count can not.)
- 3) Everyone agrees a cow with a linear score of 5.0 or greater is an infected animal. Many people believe a linear score of 4.0 or greater is a more appropriate level for calling an animal "infected".
- 4) If animals had a "low" count last month, and have a high count this month, they are newly infected.
- 5) If animals had a high count last month and a high count this month they are chronically infected.
- 6) If animals had a high count last month and a low count this month they are "cured".
- 7) Heifers should freshen "clean" and have a Linear Score less than 3.0 their first sampling after calving. If heifers first counts are routinely higher than 3.0 their first test then something is broken.
- 8) Cows should be low their first testday. If they went into the dry period with a high count we would like them to be cured by their dry treatment.
- 9) Cows should not pick up a new infection in the dry period. If they dried off with a low linear score, we expect them to calve with a low linear score.

These principles give us several ways to monitor and pinpoint changes in mastitis infection level.





Each dot is a cow, representing her first linear score, plotted against her fresh date. Dots are colored, representing the lactation group of that cow. Generally, animals are calving at a higher level of infection more recently and if you could see the colors you would probably agree that a higher portion of first lactation animals are starting their lactations with a high SCC.

PLOT LS = 4.5 BY LS\RY - the Report Tab

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- Command : PLOT LS=4.5 BY LS\RY
LS
          T E S T   D A T E S
          924 1023 1123 1220  124  225  326  423  522  620  724  818  922
Chronic %   3   4   4   5   4   5   3   4   3   3   1   5   5
          #   8   9  10  10   9  11   7   8   7   7   3  10  11
New Inf %   4   4   3   6   3   6   3   6   4   4   7   4   8
          #  10   9   7  14   7  13   7  13   8   8  14   9  17
Cured %    5   5   4   4   8   2   7   3   8   7   7   4   5
          #  13  11  10   9  16   5  15   7  16  14  15   9  11
Clean %    87  87  88  85  85  87  87  87  85  86  84  87  81
          # 210 201 197 184 180 200 189 187 177 184 170 186 171
HiFresh %  25  19  29  16   6  28  18  31  40  23  14  30  25
          #   5   4   7   4   2   5   4   4  10   5   4   8   8
LoFresh %  75  81  71  84  94  72  82  69  60  77  86  70  75
          #  15  17  17  21  33  13  18   9  15  17  24  19  24

Average    2.1  2.2  2.4  2.5  2.0  2.3  2.2  2.3  2.3  2.0  2.1  2.4  2.5
          #  261 251 248 242 247 247 240 228 233 235 230 241 242

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This command summarizes the whole year, by test date in terms of infection status. We set "infection" as 4.5 or higher in the command. Then it summarizes percentage and number of Chronic, New, Cured and Clean. Fresh cows are looked at separately as calving Lo(w) (uninfected) and Hi(gh) (infected). The example herd is currently at an average linear score of 2.5 with 8, or 25% of the fresh cows infected.

Table 1
(for evaluating the Dry Period)

B	DRYLS <4.5		DRYLS >=4.5		C
	LS1 >=4.5	10 17%	5 8%		
A	DRYLS <4.5		DRYLS >=4.5		D
	LS1 <4.5	35 59%	9 15%		

The dry period evaluation box takes a moment to understand but is well worth the effort. There are four quadrants in to this evaluation.

- A. The bottom left quadrant are animals that had a low dry off score, and freshened with a low score (59% of the animals).
- B. The upper left hand corner represents animals that dried off with a low linear score and calved with a high linear score. 17% of the animals were low, and got infected in the dry period.
- C. The upper right hand represents animals that dried off high and calved high. 8% of the animals were infected going into out off the dry period.
- D. The bottom right hand corner are animals that dried off infected and calved low. 15% of the animals were cured in their dry period.

Just like any disease in mammals we can not win if we must intervene on every infection. Rather we must create an environment that allows the animals to spontaneously cure themselves, minimizing the visible signs of infection and maintaining the happy, profitable cows we all enjoy working with. Somatic Cell information gives us the sensitive measure we need for managing their environment.



DHI milk samples being tested at the Dairy One Milk Lab, State College, PA

For more information, contact your Dairy One Farm Service Technician, or call 1.800.344.2697.

Table 2
Linear Score vs. SCC Count Reference Table

Linear Scores	SCC Count
1	25,000
2	50,000
3	100,000
4	200,000
5	400,000
6	800,000
7	1,600,000
8	3,200,000

(Notice that whenever Linear Score changes by one, the Somatic Cell Count doubles, or halves).

It is interesting to note that every time Linear Score increases by one, cows loose 1.5 pounds of milk production per day. When animals are not infected, even relatively small increases in Somatic Cell counts result in significant production loss.