



**ARIZONA AND NEW MEXICO
DAIRY NEWSLETTER**

**COOPERATIVE EXTENSION
The University of Arizona
New Mexico State University**

FEBRUARY 2003

This month's article:

**Increasing Somatic Cell Counts Progressively Decreases
Milk Production Even at "Acceptable Levels"**

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O.B. Mendivil and L.H. Baumgard
University of Arizona
(inside)**

New Mexico State University Extension Dairy Website:
<http://www.nmsu.edu/~dairy>

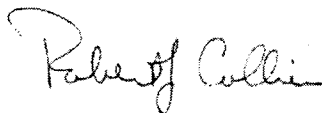
The following videos are available for checkout from New Mexico State University. To obtain a video call Kathy Bustos, (505) 646-3326 or kbustos@nmsu.edu and the video will be sent in the mail, pending availability. There is only one copy of each video available, so we request that videos be returned within two weeks. Note that four of the videos contain an English and Spanish version.

1. The Milking School. Utah State University. Spanish and English. 30 minutes
2. Fitting and Showing Your Dairy Animal....A Winning Experience. Department of Dairy Science, University of Wisconsin. 20 minutes
3. Proper Milking Procedure. University of Florida. Spanish and English. 12 minutes
4. Milking Machine Maintenance. University of Florida. Spanish and English. 16 minutes
5. The Basics of Vacuum and Milking Systems. DHIA Services, 1991. 53 minutes
6. Understanding Dairy Cattle Behavior to Improve Handling and Production. Livestock Conservation Institute, 1992
7. Managing Milking/Ordenar Lecheria. Spanish and English. 1999. 33 minutes
8. Get Milk! Joining A Dairy Crew. University of New Hampshire, 1999. 45 minutes

Need to Calculate Production Costs?

University of Wisconsin dairy farm management specialist, Gary Frank, has developed a Excel spreadsheet to calculate variable cost of production and total cost of production. To access the spreadsheet, go to <http://www.wisc.edu/dairy-profit>, click on Decision Making Tools, then go to costcwt.xls.

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Increasing Somatic Cell Counts Progressively Decreases Milk Production Even At “Acceptable Levels”

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It is well established that an increase in somatic cell count (SCC) decreases milk yield and as a result, directly affects profitability (Table 1). As producers, profitability is a main concern, and the primary method to enhance profitability is to maximize milk production. Dairy farms often pride themselves on high milk yield and many set herd production goals, however, SCC are often ignored as long as they are within an acceptable range. Because there is no obvious link between milk quantity and quality, many producers may not realize they are in fact, biologically and intimately related. This relationship is particularly apparent with regards to SCC, as lower SCC have been consistently associated with higher milk yield. Therefore, in order to maximize milk production and profitability, SCC must be minimized.

Briefly, somatic cells are:

- White blood cells and remnants of milk secreting cells
- Normally present in low quantities, in milk from healthy cows
- Increased during mammary infection
- Sub-clinical mastitis indicator
- Associated with a decrease in milk quality (shortened shelf life), reduced milk components (fat and protein) and decrease cheese yield (reduction of curding and firmness)

Table 1: Relationship between somatic cell count and daily milk loss per cow per day

SCC Score	SCC Range (*1000)	Milk Loss (lb/d)
0	0 - 18	0
1	19 - 35	0
2	36 - 71	0
3	72 -141	1.5
4	142 -283	3.0
5	284 - 565	4.5
6	566 – 1,130	6.0
7	1,131 – 2,262	7.5
8	2,263 – 4,523	9.0
9	4,524 – 9,999	10.5

Adapted from Peters, 2002

Relationship between SCC and Profitability

Mastitis is one of the most common and costly diseases dairies face today. Due to progressive management and environmental conditions, producers in New Mexico and Arizona have much lower incidence of mastitis and reduced SCC when compared with other areas in the United States. A study published by Norman and coworkers in 2000 *Journal of Dairy Science* reported average SCC for New Mexico and Arizona to be 243,000 and 297,000, respectively. Initially, these levels appear respectable, but as indicated in the following example, even these levels are responsible for a large loss of milk and profit. Costs associated with mastitis and increasing SCC includes: treatment, discarded milk, a decrease in milk production and replacement of culled animals. When the relationship between SCC and mastitis is considered, the importance of monitoring and reducing SCC is magnified. In fact, the relationship between increasing SCC and decreasing milk production is dramatic (Table 1). For example, an increase in somatic cells from 50,000 to 200,000 will cause a decrease of approximately 3 lbs/milk/day. With \$11.00 milk, this would account for a loss of about \$100/cow over a 305-day lactation. On an average size dairy in New Mexico and Arizona, profit lost would be over \$100,000/year. This estimate only includes reduced production and does not account for treatment costs or monetary losses associated with increased culling rates.

Monitoring and Reducing SCC

Many, if not most, progressive producers currently have some systematic method of monitoring udder health, but below is a brief description of the most common and easy methods currently used on dairy farms around the country. The first step in managing SCC is to have a good indication of current SCC levels. Bulk tank SCC are measured in samples taken by the milk truck driver, and these results can easily be obtained from the milk processor or milk cooperative. This is the first line of defense, but bulk tank results are not useful at identifying infection on a per cow basis, as they only provide general information about the herd as a whole. This information can only be utilized to determine if there is a decrease or improvement in overall mammary hygiene. In addition, this data may indicate that milking procedures and equipment as well as the housing situation and corrals may need additional attention. Two other methods of monitoring SCC include line monitoring and individual cow sampling, typically performed by a company specializing in milk sampling and analysis, and this will further narrow which specific cows are contributing to high SCC. Line sampling can identify specific pens that are having problems, and this may be all the information many producers need to determine whether corrals need additional maintenance. This is especially pertinent in fresh cow pens as it can alert managers to problems occurring as a result of overcrowding, or inadequately maintained dry cow pens. These sampling procedures are typically conducted monthly by milk monitoring companies, which compile the data into easily readable reports. When bulk tank sampling indicates high SCC many producers sample the entire herd or milk line sample individual pens to pinpoint problem areas. Somatic cell count can be a powerful tool for producers to monitor udder health, manage mastitis, enhance milk production and increase profitability. The strong relationship

between SCC and milk production should provide great incentive for reducing SCC not only for processor quality bonuses, but also because reducing SCC raises milk production with few additional costs.

Peters, R. R. 2002. Evaluating herd milk quality using DHI somatic cell counts. Pages 57-73 in the Proceedings of 1st Annual Arizona Dairy Production Conference, Phoenix, AZ.

Norman, H. D., R. H. Miller, J. R. Wright and G. R. Wiggans. 2000. Herd and state means for somatic cell count from dairy herd improvement. *J. Dairy Sci.* 83:2782-2788.

HIGH COW REPORT

January, 2003

MILK

Arizona Owner	Barn #	Age	Milk	New Mexico Owner	Barn #	Age	Milk
* Stotz Dairy West	14648	3-4	37,500	* Do-Rene Dairy	2103	8-06	40,500
* Stotz Dairy West	13207	4-5	36,980	S.A.S. Dairy	229	8-08	38,771
* Stotz Dairy West	13038	4-2	36,710	Pareo Dairy	2024	9-00	38,318
* Mike Pylman Dairy	4129	5-2	36,450	* High Plains Dairy	13	---	38,260
* Stotz Dairy West	19632	4-8	36,380	* Hide Away Dairy	2908	5-06	37,370
* Stotz Dairy West	13679	4-2	35,770	S.A.S. Dairy	3316	5-03	37,242
* Hillcrest Dairy	9338	7-3	35,750	* Hafliger Dairy	7062	4-03	37,220
* Stotz Dairy West	12008	5-3	35,210	* Providence Dairy	8255	---	37,040
* Stotz Dairy West	13467	4-2	35,150	Breedyk Dairy	6557	6-06	36,740
* Stotz Dairy West	13038	8-4	35,050	S.A.S. Dairy	2821	3-00	36,574

FAT

* Stotz Dairy West	6774	6-7	1629	* Oasis Dairy	3190	4-06	1471
* Stotz Dairy West	14360	3-6	1558	Mariposa Dairy Farm	1219	3-02	1466
* Stotz Dairy West	13486	4-2	1449	Pareo Dairy	2024	9-00	1427
* Stotz Dairy West	13038	4-6	1423	Pareo Dairy	1390	5-01	1372
* Stotz Dairy West	13091	4-6	1374	Breedyk Dairy	6557	6-06	1336
* Dutch View Dairy	1700	2-0	1360	* Do-Rene Dairy	2040	6-06	1327
* Wigwam Dairy	464	4-11	1337	* Hide-Away Dairy	2742	5-06	1323
Shamrock Farms Dairy	27778	3-7	1319	Ken Miller Dairy	760	4-01	1322
Rio Blanco Dairy	4415	4-2	1313	S.A.S. Dairy	2407	6-06	1321
* Hillcrest Dairy	9338	7-3	1312	* Hide-Away Dairy	2699	5-06	1320

PROTEIN

* Caballero Farms LLLP	2175	4-0	1209	S.A. S. Dairy	229	8-08	1180
* Stotz Dairy West	19632	4-8	1141	* High Plains Dairy	13	---	1168
* Hillcrest Dairy	2172	4-5	1054	S.A.S. Dairy	3316	5-03	1146
* Hillcrest Dairy	9338	7-3	1052	S.A.S. Dairy	3606	4-08	1145
* Stotz Dairy West	12761	4-10	1032	Mariposa Dairy Farm	1195	3-00	1139
* Stotz Dairy West	12008	5-3	1031	Ken Miller Dairy	760	4-01	1112
* Stotz Dairy West	6774	6-7	1021	Breedyk Dairy	6557	6-06	1110
Rio Blanco Dairy	4415	4-2	1019	* Do-Rene Dairy	2103	8-06	1105
* Stotz Dairy West	5775	8-4	1017	Pareo Dairy	1546	7-03	1105
* Wigwam Dairy	464	4-11	1015	* Providence Dairy	8255	---	1086

* 3X milking

**ARIZONA – TOP 50% FOR F.C.M.^b
JANUARY, 2003**

OWNERS NAME	Number of Cows	MILK	FAT	3.5 FCM	R.R.
* Stotz Dairy West	1985	28,267	1022	28,797	45
* Red River Dairy	4783	27,794	987	28,025	28
Martha Linda Dairy	1903	25,959	954	26,697	28
University of Arizona Holsteins	184	25,787	915	25,990	22
* Mike Pylman Dairy	2592	25,398	903	25,626	33
* Stotz Dairy East	1393	24,541	870	24,720	59
* Arizona Dairy South	3303	24,866	859	24,683	33
* Arizona Dairy North	2645	25,020	885	24,670	36
* Hillcrest Dairy	2337	24,738	854	24,527	47
* DC Dairy, LLC	1083	23,518	861	24,132	27
* Del Rio Holsteins	1258	23,831	852	24,123	25
* Zimmerman Dairy	1191	23,484	849	23,923	29
Paul Rovey Dairy	439	23,499	843	23,832	36
University of Arizona Brown Swiss	104	22,301	872	23,785	25
* Wigwam Dairy	1402	23,120	842	23,652	35
* Danzeisen Dairy, LLC	1207	22,968	825	23,310	36
Butler Dairy	631	22,683	801	22,799	31
* Saddle Mountain Dairy	2065	23,434	757	22,408	29
* Del Rio Brown Swiss	177	21,304	794	22,089	33
Treger Holsteins, Inc.	503	21,677	772	21,893	26
* RG Dairy, LLC	1279	22,031	760	21,851	27
* Dutch View Dairy	1638	21,723	754	21,620	32
* Dairyland Milk Company	2419	21,816	745	21,514	24
Parker Dairy	4263	20,745	773	21,506	24
* Gladtime West Holsteins	349	21,550	734	21,232	24
Goldman Dairy	2053	21,084	745	21,198	32

NEW MEXICO TOP 50% ACTUAL MILK – OFFICIAL & UNOFFICIAL HERDS

<u>OWNERS NAME</u>	<u>Number of Cows</u>	<u>MILK</u>	<u>FAT</u>	<u>3.5 FCM</u>	<u>R.R.</u>
* Hafliger Dairy	1684	27,957	998	28,272	44
* Pareo Dairy #1	1367	26,889	952	27,064	21
* Hide-Away Dairy	2125	25,440	868	25,076	23
McCatharn North Dairy	1055	24,682	830	24,132	39
Ken Miller Dairy	354	24,568	825	24,001	27
* Tallmon Dairy	531	24,355	842	24,185	31
Providence Dairy	2454	24,112	840	24,047	30
* Goff Dairy	4349	23,605	836	23,763	40
Pareo Dairy #2	2750	23,606	880	24,477	18
S.A.S. Dairy	2018	23,513	844	23,853	36
* Do-Rene Dairy	3551	23,269	827	23,472	31
Price's Roswell Farm	2761	23,094	816	23,218	35
Breedyk Dairy	2791	23,054	742	22,001	30
High Plains Dairy	1724	22,826	837	28,272	38
Vaz Dairy	1679	22,581	782	22,445	30

* 3X a day milking

^b average milk and fat figure may be different from monthly herd summary; figures used are last day/month

ARIZONA AND NEW MEXICO HERD IMPROVEMENT SUMMARY
FOR OFFICIAL HERDS TESTED JANUARY 2003

		ARIZONA	NEW MEXICO
1.	Number of herds	56	29
2.	Total cows in herd	73,599	46,417
3.	Average herd size	1314	1600
4.	Percent days in milk	86	85
5.	Average days in milk	190	199
6.	Average milk – all cows per day	61	57.1
7.	Average percent fat – all cows	3.6	3.6
8.	Total cows in milk	63,295	46,054
9.	Average daily milk for milking cows	71.0	69.6
10.	Average days in milk – 1 st breeding	82	74
11.	Average days open	159	149
12.	Average calving interval	13.9	13.8
13.	Percent somatic cell – linear 0-4	89	76
14.	Percent somatic cell – linear 5-6	5	14
15.	Percent somatic cell – linear 7 & above	6	7
16.	Average previous days dry	63	70
17.	Percent cows leaving herd	32	36
		STATE AVERAGE	
	MILK	21,918	21,865
	Percent butterfat	3.6	3.6
	Percent Protein	2.9	3.0
	Pounds fat	787	834
	Pounds protein	644	633

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