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G87-860 How to Interpret the DHIA-230 Somatic Cell Count Report

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How to Interpret the DHIA-230 Somatic Cell Count Report

This guide explains how to examine DHIA somatic cell count reports and use them as valuable aids in identifying the major causes of individual herds.

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Losses to mastitis are estimated at more than $200 per cow annually. In Nebraska annual losses total more than $20 million dollars. The various items contributing to direct mastitis losses per cow are listed in *Table I.*

Table I.

Cause of Loss	$ Per Cow	% of Total
Decreased milk	140	70
Discarded milk	20	10
Replacement cost	16	8
Decreased sale value	10	5
Drug therapy	8	4
Yet services	4	2
Extra labor	2	1
Total loss	$200	100%

Somatic cell programs offered by the Dairy Herd Improvement Association (DHIA) program provide the dairy industry with a much needed tool to monitor both the herd and individual mammary health status. They offer a way to identify clinical or subclinical mastitis so associated milk losses can be calculated and/or measures initiated to correct the cause of SCC rise. Increased Somatic Cell Counts (SCC) have been associated with decreased milk and fat production. These losses occur even with low SCC readings of 200,000 cells/ml and below. The estimated milk lost for varying SCC scores is shown in *Table II*.

Table II. Milk production lobes for various SCC scores.

SCC (000's/ml)	Pounds/day	Pounds/lactation
50	0	0
100	1.5	400
200	3.0	800
400	4.5	1,200
800	6.0	1,600
1,600	7.5	2,000
3,200	9.0	2,400
6,400	10.5	2,800

If you have a typical Nebraska herd of 75 cows and your SCC score is 800,000, your estimated loss in milk production is an astounding 120,000 pounds per year. With a milk price of $11 per hundredweight, this lost milk amounts to a gross income of $13,000 per year. Not only are you losing income from the sale of milk, but you also may be losing a premium for not selling high quality milk as well as other mastitis related losses.

An excellent way to monitor your herd's SCC score and to identify potential problem cows and management practices is to enroll in the DHIA-SCC testing program. This program enables the producer to monitor not only each individual cow's SCC level, but also helps in uncovering potential herd management problems. An SCC report is mailed monthly to each producer enrolled in the program. The report has seven major components (*Figures 1* and *2*). We will take each part of this report and show how it can be used as a guide to help decrease your SCC count or keep it from increasing.

SOMATIC CELL COUNT REPORT - DHIA 230
HERD SUMMARY LAB DATE:

SAMPLE DATE: 10-01-87
10-02-87
MAIL DATE: 10-06-87

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LACTATION AVERAGE (000's)	YOUR HERD
1st LACTATION	379
2nd LACTATION	757
3rd LACTATION	580

WEIGHTED HERD AVERAGE SCC BY SAMPLE DAY (000'S)						
SAMPLED 5-03	SAMPLED 6-04	SAMPLED 7-09	SAMPLED 8-04	SAMPLED 9-03	SAMPLED 10-01	MID-STATES TOP 25%
266	3911	720	478	466	572	177

SCC SUMMARY (000'S)	NO ANIMALS	HERD %	MID-STATES %
BELOW 100			53
100 - 200			24
201 - 400	61	59	13
401 - 800	32	31	7
OVER 800	11	11	4

DAYS IN MILK SCC AVERAGE (000'S)	YOUR HERD	MID-STATES AVERAGE
FRESH UNDER 50 DAYS	449	187
FRESH 50 - 100 DAYS	722	155
FRESH 101 - 200 DAYS	514	173
FRESH 201 - 300 DAYS	613	204
FRESH OVER 300 DAYS	400	229

LINEAR SCORE	
HERD AVERAGE	MILK LOSS LBS/DAY
5.2	

RELATIONSHIP OF LINEAR SCORE AND ESTIMATED MILK PRODUCTION LOSS			
LINEAR SCORE	SCC RANGE FROM TO	ESTIMATED MILK LOSS PER DAY	ESTIMATED MILK LOSS PER LACTATION
0 - 2	9 - 71	0	0
3	72 - 141	1.5	400
4	142 - 283	3.0	800
5	284 - 565	4.5	1,200
6	566 - 1130	6.0	1,600
7	1131 - 2262	7.5	2,000
8	2263 - 4523	9.0	2,400
9	4524 - 9045	10.5	2,800

***** ANIMALS OVER 400,000 CELL COUNT *****

BARN NAME	SCC SCORE	% CONTRIB	BARN NAME	SCC SCORE	% CONTRIB	BARN NAME	SCC SCORE	% CONTRIB
200	7,179,000	17	196	526,000	1	174	407,000	1
3507	2,215,000	3	277	504,000	1	145	406,000	1
119	1,840,000	3	122	495,000	1	118	401,000	1
140	1,516,000	3	279	492,000	1			
3449	1,513,000	4	130	483,000	1			
232	1,241,000	1	259	469,000	1			
136	1,169,000	2	155	460,000	1			
208	1,157,000	1	652	457,000	1			
115	1,151,000	3	114	447,000	1			
176	1,145,000	2	120	437,000	1			
72	821,000	2	88	436,000	1			
74	741,000	1	29	433,000	1			
153	720,000	2	198	423,000	1			
121	696,000	1	131	423,000	1			
231	692,000	1	156	422,000	1			
271	685,000	1	252	417,000	1			
217	594,000	1	202	413,000	1			
110	567,000	1	150	413,000	1			
262	546,000	1	280	413,000	1			

MID-STATES DRPC

Figure 1. DHIA Somatic Cell Count Herd Summary

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SOMATIC CELL COUNT REPORT - DHIA 230
INDIVIDUAL ANIMAL

SAMPLE DATE: 10-01-87
LAB DATE: 10-02-87
MAIL DATE: 10-06-87

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PREVIOUS 5 SAMPLE DAY SCC SCORES (000'S)						CURRENT LACTATION						
COMPUTER NUMBER	5-03	6-04	7-09	8-04	9-03	10-01	LINEAR SCORE	BARN NAME	LACT NO	FRESH DATE	DAYS IN MILK	MILK LBS
3551	DRY	DRY	XXX	216	244	289	4.6	1	5	7-05	88	89.0
3586	83	178	262	269	277	338	4.8	14	5	2-26	217	48.0
3593	94	189	236	311	349	DRY		19	4	12-05	DRY	
3604	156	271	379	DRY	DRY	XXX		28	5	9-26	5	
3613	324	551*	DRY	DRY	DRY	433*	5.2	29	5	9-07	24	85.0
3615	DRY	DRY	DRY	XXX	396	309	4.7	34	5	8-02	60	82.0
3618	DRY	DRY	DRY	DRY	526*	313	4.7	40	4	8-12	50	100.0
3650	276	348	DRY	DRY	DRY	DRY		69	3	9-21	DRY	
3649	892*	DRY	DRY	914*	826*	821*	6.1	72	4	7-26	67	80.0
3657	559*	832*	542*	486*	543*	741*	5.9	74	3	10-06	360	56.0
3652	92	215	247	341	289	DRY		77	3	6-26	DRY	
3654	271	321	242	779*	345	346	4.8	78	4	2-18	225	51.0
3663	133	236	280	DRY	DRY	DRY		80	3	6-05	DRY	
3666	89	232	1030*	3637*	DRY	DRY		83	3	0-04	DRY	
3665	198	DRY	DRY	DRY	DRY	DRY		86	3	8-06	DRY	
3672	408*	640*	DRY	DRY	881*	436*	5.2	88	4	8-17	45	91.0
3717	74	178	329	DRY	DRY	DRY		98	3	10-15	DRY	
3684	102	233	221	352	303	DRY		100	3	2-31	DRY	
3688	92	275	525*	236	275	341	4.8	106	3	11-11	324	32.5
3693	638*	268	428*	379	532*	567*	5.6	110	3	12-28	277	22.5
3696	93	210	187	257	272	447*	5.2	114	3	12-18	287	41.0
3694	DRY	DRY	1004*	577*	742*	1151*	6.6	115	3	6-13	110	79.0
3699	268	511*	4537*	392	3043*	401*	5.1	118	3	11-23	312	46.5
3700	DRY	1177*	3278*	864*	2758*	1840*	7.3	119	3	5-24	130	55.0
3701	1797*	224	419*	830*	901*	437*	5.2	120	3	1-23	251	34.0
3710	DRY	DRY	441*	333	293	696*	5.8	121	3	6-13	110	55.0
3711	117	146	220	183	233	495*	5.4	122	3	1-09	265	41.0
3702	DRY	DRY	819*	205	211	290	4.6	125	3	6-23	100	65.0
3705	DRY	DRY	DRY	186	197	254	4.4	129	3	7-10	83	71.0
3709	50	173	358	299	348	483*	5.3	130	3	3-10	205	48.5
3714	186	402*	215	257	254	423*	5.1	131	3	4-21	163	63.0
3715	96	165	5832*	205	281	341	4.8	132	3	2-28	277	30.0
3719	252	1063*	1336*	750*	944*	1169*	6.6	136	3	3-02	213	55.5
3727	1180*	280	304	217	262	385	5.0	137	2	2-20	285	49.0
3725	DRY	DRY	361	174	218	368	4.9	138	3	6-04	119	87.0
3724	628*	263	7415*	806*	852*	1516*	7.0	140	2	4-12	172	60.0
3816	81	131	182	273	291	336	4.8	141	2	12-01	304	29.0
3720	140	DRY	DRY	897*	441*	342	4.8	142	3	7-23	70	56.0
3732	DRY	DRY	218	202	290	406*	5.1	145	3	6-15	108	72.0
3733	140	248	DRY	DRY	DRY	398	5.0	146	3	9-11	20	69.0
3730	131	DRY	DRY	XXX	476*	269	4.5	148	3	7-30	63	80.0
3728	DRY	DRY	368	248	300	413*	5.1	150	3	6-22	101	63.0
3737	DRY	624*	793*	656*	668*	720*	5.9	153	2	5-10	144	74.0
3738	99	DRY	DRY	2071*	266	340	4.8	154	2	7-29	64	81.0
3742	165	264	277	253	203	460*	5.2	155	2	12-26	279	37.5
3739	121	236	323	514*	384	422*	5.1	156	2	10-11	355	49.0
3740	148	178	253	314*	417*	DRY		157	2	9-20	DRY	
3744	105	220	252	206	268	279	4.5	160	2	8-28	399	33.0
3745	175	313	327	403*	439*	398	5.0	161	2	11-01	334	30.5
3749	109	212	169	285	DRY	DRY		162	2	10-27	DRY	
3751	234	394	2300*	990*	589*	DRY		167	2	10-13	DRY	
3757	XXX	186	222	205	202	273	4.5	168	2	5-02	152	44.0
3859	XXX	280	138	227	303	304	4.7	172	2	5-03	151	59.0
3756	65	189	251	260	DRY	DRY		173	2	11-04	DRY	
3764	122	157	180	356	307	407*	5.1	174	2	4-04	180	58.5
3763	114	382	233	259	1247*	310	4.7	175	2	12-01	304	28.5
3758	278	171	999*	1482*	1041*	1145*	6.6	176	2	1-27	247	43.5
3759	117	284	304	298	298	DRY		177	1	8-13	DRY	

XXX = SAMPLE MISSING OR INSUFFICIENT * COUNT OVER 400,000 MID-STATES DRPC

Figure 2. Somatic Cell Count Individual Cell Report.

Lactation Averages

The report stratifies the average SCC score for three lactation groupings--1, 2, 3 and greater. This part of

the report shows if there is a problem with animals in a certain lactation. If your heifers have a serious SCC problem, your heifer rearing facilities may be dirty, wet, lack adequate ventilation or your freshening area for heifers may be harboring bacteria that is causing serious contamination. If the older animals are presenting the problem, perhaps: 1) you are not dry treating your cows, 2) your housing and dry lots need to be cleaned or, 3) your calving stalls need cleaning and disinfecting. One can normally expect the older animals to have slightly higher SCC scores than heifers.

Weighted Herd Average by Sample Day

This listing shows the average SCC for your herd weighted by the amount of milk each cow produced. This report shows a rolling six-month average on your herd's SCC level. Use this information to monitor any management changes made during the last six months. It also may indicate whether the herd's SCC is being affected by things of which you are not aware. This report also shows if SCC scores increase during certain seasons of the year. If you notice a marked increase for a given season, examine your facilities to see if there is excess moisture in certain areas, poor sanitation, lack of shade, or other potential problems that should be avoided or corrected before next year.

SCC Summary

This gives a distribution of the number of cows regardless of lactation number that fall into five SCC levels below 100,000 to above 800,000 cells. This immediately will let you know where your cattle rank. This section also allows you to compare your herd with the average of all herds in the Mid State Processing Area. Remember one or two cows can greatly influence your herd's SCC score so be certain to look at this summary to aid you in interpreting your overall score.

Days in Milk SCC Average

This section gives you the average SCC score for all cows at different stages of lactation. The scores on cows fresh under 50, 50-100, 101-200, 201-300 and over 300 days are listed. By using this grouping you can see if you are having problems early, in the middle or during the latter part of the lactation. If your cow's SCC scores are highest during the early stages of lactation, check freshening areas for possible problems. A clean, dry, well-ventilated freshening area is essential for low SCC scores. If the majority of scores are high, examine milking procedures, milking equipment, sanitation practices, treatment procedures and check for stray voltage.

Linear Score

This section lists your SCC score in a linear form. To provide more uniform SCC reporting, the Dairy Herd Improvement Association has adopted a uniform scoring method called the linear score. The linear score divides the somatic cell count into ten categories from 0 through 9. The section in *Figure 1* entitled "Relationship of Linear Score and Estimated Milk Production Loss" shows that for each increase in the linear score the cell count doubles.

Animals Over 400,000 Cell Count

All animals that have cell counts in excess of 400,000 are listed under this section. These cows should have quarter samples taken and checked closely because their cell counts indicate serious clinical or subclinical mastitis problems. Also, included along with the cow's SCC score is the percent of the overall herd SCC score that each cow is contributing. Often one can greatly reduce the SCC level by simply culling a few cows. The quickest and easiest way to reduce SCC is simply to cull the top SCC

cows. To permanently reduce SCC, you must get to the root of the problem.

Individual Animal Report

(*Figure 2*) DHIA lists the SCC scores on all cows for the last six months. This is an excellent way to monitor your cattle to spot those animals with chronic problems. If a cow always has a high SCC score, culture her milk to see if there is a particular pathogen causing the problem. Once you have identified a specific pathogen, establish and follow your veterinarian's treatment program.

The DHIA-SCC report can be a valuable aid in identifying some of the major causes of mastitis. The common causes of mastitis that cause high cell counts are:

1. Faulty milking procedures,
2. Milking equipment,
3. Poor sanitation,
4. Poor facilities,
5. Stray voltage,
6. Specific pathogen infection,
7. Long lactations, and
8. A high proportion of older cows.

For additional information on mastitis, consult the Cooperative Extension publication: EC87-726 *Mastitis Control Guidelines*.

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