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Dairy Update

THE MINNESOTA DHI-SCC PROGRAM
(SOMATIC CELL COUNT)

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Mastitis is the single most costly disease on the dairy farm today. About $1.00 is lost for every $8.00 of income earned from the sale of milk. Nearly 70% of this loss results from reduced milk production as a result of subclinical mastitis (that mastitis you cannot see).

"Mastitis is a disease of man - the symptoms of which are seen in the cow" (Dr. James Jarrett). Since mastitis is a management disease, we must be willing to admit the cause of mastitis is probably due to our own management shortcomings.

The Minnesota DHI-SCC program is a herd prevention program, not an individual cow treatment program. The emphasis is on prevention, not treatment. There are 3 ways that a herd problem can be helped:

1. Correct the cause of the problem. The SCC program is designed to help you determine the cause.

2. Cull chronic cows - - cows that nearly always have a high SCC. These cows are simply carriers and will most likely continue to be a primary cause of a continuing problem.

3. Treat individual cows, only when treatment of subclinical mastitis cows is recommended by your veterinarian. We should, of course, be treating all cases of clinical mastitis (whenever there is a swollen quarter with abnormal milk.

I. Herd Variation:

There is much variation between herds. Based on the first 1,480 herds enrolled in the program, about one-third of them had a herd average below 250,000 cells. This is excellent. Another one-third are in the good range, between 250,000 and 400,000 cells. The distribution of herds is shown in Table 1.

Table 1. Distribution of Minnesota DHI-SCC Herds (1/14/81).

SCC Range	% of Herds	Accum. %	SCC Range	% of Herds	Accum. %
Excellent			Poor		
Below 100,000	3		550-700,000	10	91
100-250,000	31	34	Need Help Immediately		
Good			700-850,000	4	95
250-400,000	30	64	850,000-1M	2	97
Fair			above 1M	3	100
400-550,000	17	81			

Variation between DHI Herd Average SCC and results obtained from bulk tank samples by your processor is expected. This variation is due to:

1. milk from specific cows may be withheld from the bulk tank.

2. there are large sample day differences, caused in part because somatic cells (white blood cells) are in a continuous fight against mastitis organisms. On day 1 of an infection, bacteria counts may be high and SCC low; on day 2, the SCC count may be extremely high (over 1 million) while bacteria counts will be low.

3. variability in the sensitivity of the different test methods used. It is important to realize that your DHI central laboratory utilizes the most modern and accurate equipment available, and they are checked for accuracy at frequent intervals.

II. Herds Not In SCC Program:

If you don't have your herd on the DHI-SCC program, you can get a "feel" for your situation by comparing your bulk tank WMT score to the standards shown in Table 2. Anytime your WMT score exceeds a 14, you could benefit from identifying your problem cows, and learning when they become infected. Even herds with a WMT in the 8 to 12 range probably have a few chronic cows, even though you don't have a serious herd problem.

Table 2. Comparison of Bulk Tank WMT Scores With Somatic Cell Counts.

WMT	SCC	Subclinical Mastitis" Assessment of Herd
6 or below	Below 225,000	Excellent. Maintain control measures.
8-12	300,000 to 465,000	Good. Check for chronic cows and and control measures to improve situation.
14-16	565,000 to 675,000	Unsatisfactory. Subclinical mastitis may be widespread in your herd.
18-20	790,000 to 920,000	Poor situation. High level of infection in herd. Large $ loss due to mastitis.
22 or above	1,000 or above	Very poor situation. Immediate action called for. Obtain individual cow results. Cull or dry-off problem cows. DON'T WAIT. DO IT TODAY.

III. Interpreting Herd Summaries:

The DHI-SCC herd summaries are designed to analyze the herd situation two ways: by age of cow and stage of lactation. Since older cows have been in the herd longer, and have been milked more times, they are much more likely to have been subjected to management induced mastitis.

When appropriate mastitis control procedures are used, 90% or more of the 1st lactation cows should be in the negative column (less than 250,000 cells), and most of the remaining cows should be in the suspect column (250,000 to 550,000 cells).

Anytime several cows are in the positive (550,000 to 850,000 cells) or very strong (more than 850,000 cells) category, it suggests a need to review your mastitis control program.

A. How Much Variation is There Between Herds? Where Do You Stand?

Excellent

SCC TRENDS			
LACT NO	PCT POSITIVE OR V STRONG		
	CURRENT	LAST MO	YEAR AGO
1ST	0	0	
OTHER	9	13	
ALL	6	10	

Poor

SCC TRENDS			
LACT NO	PCT POSITIVE OR V STRONG		
	CURRENT	LAST MO	YEAR AGO
1ST	58	75	
OTHER	87	93	
ALL	79	87	

Operation Alert means it's time to investigate what's happening. These herds have had a significant increase in infection rate from one month to the next. Is it due to:

1. an equipment problem, such as a loose belt on the vacuum pump?
2. a different person doing the milking?
3. a sudden and severe change in the weather, with the lots becoming muddy and the cows wet and dirty?

B. Operation Alert

Herd A

SCC TRENDS			
LACT NO	PCT POSITIVE OR V STRONG		
	CURRENT	LAST MO	YEAR AGO
1ST	15	7	
OTHER	21	7	
ALL	20	7	

Sudden Increase

Check Equipment

Herd B

SCC TRENDS			
LACT NO	PCT POSITIVE OR V STRONG		
	CURRENT	LAST MO	YEAR AGO
1ST	29	0	
OTHER	50	17	
ALL	45	12	

Analyze the problem by first inspecting the summary. The young cows in the herd illustrated in section C all have low SCC scores. The older cows aren't too bad either. It is probable this dairyman doesn't have a herd problem, but rather he may have a few older, chronic infected cows. If this was your report, now would be the time to check the individual cow list.

C. Analyzing the Problem

YEARLY SCC SUMMARY			
LACT NO	PCT POSITIVE OR V STRONG		
	<130 DIM	30-220 DIM	>220 DIM
1ST	0	0	0
OTHER	10	7	13
ALL	7	6	12

← 1st Lactation Cows Clean
← Some older chronic cows

This dairyman is doing many things right, but he has one big problem - - - - heifers calving for the first time have a high cell count. Some possible reasons are listed. Are there others? Whatever the reason, find it and correct it.

D. Check Heifers at Freshening

Heifer maternity facilities
Udder edema
Calf sucking problems

YEARLY SCC SUMMARY			
LACT NO	PCT POSITIVE OR V STRONG		
	<130 DIM	30-220 DIM	>220 DIM
1ST	42	1	0
OTHER	14	15	21
ALL	32	9	8

This dairyman probably doesn't have a milking equipment problem, or even a severe deficiency in his milking procedures. This conclusion was based on the fact his young cows are free of infection. But what about the older cows? He needs to study the situation carefully. Does his dry cow management program need improving?

E. Check Dry Cow Management

Heifers ok
Cows need attention

YEARLY SCC SUMMARY			
LACT NO	PCT POSITIVE OR V STRONG		
	<130 DIM	30-220 DIM	>220 DIM
1ST	0	0	0
OTHER	28	21	21
ALL	26	17	21

When 1st lactation cows are becoming more infected as lactation progresses, and the percent of older cows infected are too high, look for deficiencies in milking equipment as a possible cause. If that is up-to-standard, take a critical look at the milking procedures.

Further, note that a high percent of the cows near the end of lactation are infected. The number coming in infected at freshening is much reduced. This suggests the dry treatment program is effective, but it simply has too big a job to do to expect complete satisfaction.

F. Check Milking Practices

YEARLY SCC SUMMARY			
LACT NO	PCT POSITIVE OR V STRONG		
	<130 DIM	30-220 DIM	>220 DIM
1ST	0	46	60
OTHER	20	34	37
ALL	11	39	42

Milking Practices Need Improving
Effective Dry Treatment

IV. Problem Cow List:

The upper-right portion of the herd summary lists those cows contributing a significant portion of the bulk tank somatic cells. The cow name or number is at the left, the percentage of the tank cells coming from the milk of that one cow is listed on the right.

On the John Dairyman sample report (see last page), two cows account for 40% of the SCC's. Good 'ol Kelly is contributing more than one-fourth of all cells, Sally another 14%. Keeping Kelly's milk out of the tank, by using it to feed calves, would lower the Herd Avg SCC from 247,000 (upper left corner of SCC Summary) to 189,000 cells.

Should you be one of them unfortunate fellows with a herd SCC that approaches 1.5 million, withholding the milk from a couple of cows will reduce the bulk tank count and help insure your ability to remain on the market.

V. Individual Cow Data:

The column at the left identifies individual cows. For the present, cows are listed in index number order rather than numerical order by number or alphabetical order by name. The computing center personnel are working to make this change. While "index number" order is a disadvantage in locating specific cows on the report, it does have one advantage. Generally the 1st lactation cows are at the end of the listing, while the older problem cows are located near the top.

Age of cow (lactation number), stage of lactation (days in milk) and current month sample data (milk weight and SCC score) are listed in the next 3 columns. Any cow with a score of 3, 4, or 5 should be considered suspicious of being infected. Positive cows, those likely to be infected but not causing severe economic losses, are those with a SCC of 6, 7, or 8. Cows with a score of 9 or more are in the very strong category, are most certainly infected with mastitis.

A "C" in the SCC code column means this cow has had a cell count of 600,000 or more for 2 consecutive months since calving. If there is no "C", then you need not pay much attention to that information on the right. A "P" indicates this cow was a "high SCC" cow for 2 consecutive months in the previous lactation.

Summary

The John Dairyman herd has a low SCC score. It isn't a problem herd, but there are problem cows and potential problem cows, namely: Jayne, Sally, and possibly Kelly. Perhaps they should be milked last to reduce the chance of spreading mastitic organisms to other cows in the herd.

Two others, Lady and Dolly, along with Kelly, had high SCC scores at freshening. Perhaps this suggests a need to check the condition of the dry cow lots and calving pens, as well as making certain the dry cow treatment program is up to standard.

This summary also does a pretty good job of charting out the lactation curve. When do cows reach peak levels of production? How quickly do they drop?

HERD CODE 41-00-0002 | MAIL DATE 02-03-81

SCC SUMMARY

SOMATIC CELL COUNT
AN EFFECTIVE TOOL
IN MASTITIS CONTROL

SAI DATE 01-27-81 | PAGE 1

SOMATIC CELL COUNT SCALE	
NEGATIVE	LESS THAN 250,000
SUSPECT	250,000 - 550,000
POSITIVE	550,000 - 850,000
V STRONG	MORE THAN 850,000
HERD AVG SCC	247,000

CURRENT SCC SUMMARY					
LACT NO	NUMBER COWS	NUMBER COWS ON SAMPLE DAY			
		NEGATIVE	SUSPECT	POSITIVE	V STRONG
1ST	10	8	2	0	0
OTHER	22	16	3	1	2
ALL	32	24	5	1	2

SCC TRENDS			
LACT NO	PCT POSITIVE OR V STRONG		
	CURRENT	LAST MO	YEAR AGO
1ST	0	0	
OTHER	14	14	
ALL	9	9	

YEARLY SCC SUMMARY			
LACT NO	PCT POSITIVE OR V STRONG		
	<130 DIM	130-220 DIM	>220 DIM
1ST	0	4	6
OTHER	12	18	16
ALL	8	14	14

LIST OF PROBLEM COWS WITH PERCENT HERD SCC		
KELLY. 26		
SALLY. 14		

DAIRY HERD IMPROVEMENT
DHI 222 8 80

PREVIOUS SAMPLE DAY MILK POUNDS AND SOMATIC CELL COUNTS (ADD 5 ZEROS TO SCC TO GET CELL COUNT)

BARN NAME	LACT NUMBER	DAYS IN MILK	CURRENT SAMPLE 1-27-81 MILK	CURRENT SAMPLE 1-27-81 SCC	SCC CODE	DEC 24 34 DAYS AGO MILK	DEC 24 34 DAYS AGO SCC	NOV 22 66 DAYS AGO MILK	NOV 22 66 DAYS AGO SCC	OCT 25 94 DAYS AGO MILK	OCT 25 94 DAYS AGO SCC	SEP 29 120 DAYS AGO MILK	SEP 29 120 DAYS AGO SCC	AUG 26 154 DAYS AGO MILK	AUG 26 154 DAYS AGO SCC	JUN 26 215 DAYS AGO MILK	JUN 26 215 DAYS AGO SCC	MAY 23 249 DAYS AGO MILK	MAY 23 249 DAYS AGO SCC	DAYS AGO MILK	DAYS AGO SCC	DAYS AGO MILK	DAYS AGO SCC	DAYS AGO MILK	DAYS AGO SCC	COMMENTS
LUCY	4	183	52	2		59	2	62	1	67	1	81	3	75	2											
CINDY	4	102	78	1		87	1	90	0	83	5															
JAYNE	3	338	41	6	C	43	6	43	6	49	3	55	6	58	10	79	1	86	1							
DARLEN	4	44	93	1		82	1																			
ALVINA	4	125	85	5		88	1	87	4	88	4															
DIANE	4	122	61	1		70	0	74	0	73	1															
KAREN	4	40	74	0																						
ANGEL	4	39	72	0																						
LADY	4	180	76	1	C	76	3	88	3	91	5	79	10	68	13											
SALLY	4	142	56	12	C	65	12	61	8	79	5	68	4													
TRACY	4	78	87	0		98	1	72	1																	
EDNA	4	20	115	1	P																					
KELLY	4	10	74	17	P																					
MOLLY	3	288	44	2		52	2	59	1	70	1	62	2	60	1	91	1	99	0							
WANDA	3	315	29	3		35	2	33	2	35	2	49	2	48	1	66	1	70	1							
TINY	3	122	68	1		73	0	79	0	83	0															
NANCY	6	36	90	2																						
CANDY	2	130	60	1		65	2	50	23	71	0	59	1													
JILL	2	122	60	0		63	0	71	0	73	0															
BETH	2	50	54	2		77	1																			
DEBBIE	2	18	79	4																						
DOLLY	1	283	28	1	C	39	0	42	0	42	0	48	1	41	0	50	19	51	7							
KRISTI	1	271	27	5		44	0	47	0	50	0	45	0	45	1	49	1	53	1							
SANDY	3	178	48	1		47	1	55	1	56	1	58	1	59	5											
MAGGIE	1	167	47	1		57	1	51	0	52	0	51	0	51	1											
LORI	1	143	45	3		45	2	48	2	44	3	46	1													
BABE	1	138	38	1		40	1	39	0	46	0	31	1													
ANNE	1	126	43	2		43	2	45	1	45	1															
JACKIE	1	111	49	1		58	0	52	0	55	1															
TINA	1	85	45	1		47	1	45	0																	
BLACKY	1	81	56	2		63	1	57	1																	
KARLA	1	76	55	0		58	1	50	1																	