

B.C. DAIRY TALK

Troubleshooting Mastitis (Using Your BCDHIS SCC/LS Report)

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Solving mastitis problems are similar to playing detective ...the clues are in your records. Monitor the herd and the cows for changes in Somatic Cell Counts (SCC) or Linear Scores (LS) and hold mastitis in check. BCDHIS somatic cell count reports make the job of tracking mastitis consistent and easier.

Job No. 1... When Is It A Problem?

Research at the University of Guelph in Ontario suggests that the best level for classifying cows as having mastitis or not is 200,000 cells/ml or LS >4. Having 10% or more of the herd over this level should trigger warning bells and encourage more investigation. Fast action could save valuable production dollars. Check your herd using the *Herd Dollar Loss Worksheet* (table below) to see the effect mastitis has on your profit.

HERD DOLLAR LOSS WORKSHEET							
Lactation Average Linear Score	First Lactation			Second Lactation			Herd Total
	Number of Cows	Lactation Milk Loss	Group Total	Number of Cows	Lactation Milk Loss	Group Total	
0		0	0		0	0	0
1		0	0		0	0	0
2		0	0		0	0	0
3		90			180		
4		180			360		
5		270			540		
6		360			720		
7		450			900		
8		540			1080		
9		630			1260		

Herd Total Milk Loss Per Year _____ Kg
Dollar Loss Per Year = [(_____ Kgperyear \Rightarrow 100) x \$55.00] = \$ _____
Dollar Loss Per Month = \$ _____ Loss Per Year \Rightarrow 12 = \$ _____
Dollar Loss Per Day = \$ _____ Loss Per Year \Rightarrow 365 = \$ _____

It is important to judge a cow on a minimum of two SCC or LS readings. Somatic cell production can naturally vary by a range of 50,000 to 100,000 cells/ml. Other factors that effect SCC or LS counts are: severity of the infection, age of the cow, stage of lactation, type of sample, number of quarters infected and the type of infection. For more information on these sources of variation see, *Managing Somatic Cell Counts For Profit*, a 32 page manual produced by BCDHIS.

What Type of Problem Is It?

Is it contagious (e.g., Staph. aureus, Strep. ag.) or environmental (e.g., Coliforms, Strep. non-ag.) mastitis or a mixture of both? Contagious mastitis comes from an infected cow, spreads from cow to cow and is usually subclinical (i.e., no visual signs). In contrast to contagious mastitis, environmental mastitis comes from a contaminated environment, is transmitted from the environment to the cow and is often very visual (i.e., clinical).

Somatic Cell Counts and Linear Scores are one means to detect mastitis. Culturing milk from both clinical and subclinical cows goes one step further and helps you know what type of bacteria

is infecting your cows and how best to solve the problem. Sampling techniques are critical for an accurate and useful picture of the problem. Advice on how to collect milk for culturing can be found through your veterinarian, Dairy Processor Representative, BCMAFF Animal Health Centre or BCMAFF Dairy Technologist or Specialist.

Sampling for culturing can be done 4 ways:

1. Sample the entire herd:

- Most accurate and informative, but can be excessive.
- Discuss the necessity of this with your veterinarian.
- Need will depend on the severity of the infection and testing frequency.

2. Sample high count cows only:

- In a major outbreak this will be sufficient to get started.
- **But**, if a mixture of bacteria are present, more sampling may be required to determine predominant bacteria. Remember, bacteria are opportunists – to stay on top of mastitis more than one sampling will be required!
- Good method to start, but new infections and subclinical sources may be missed.

3. Combination of Methods 1 and 2:

- Sample a mixture of high and low count cows. The number sampled in each group will depend on the herd size and the degree of infection. Discuss with veterinarian on appropriate sampling size.
- Gives a better overall picture of bacterial population.

4. Sample the bulk tank:

- Bulk tank cultures are simple and fast.
- Good method to check herd progress after changes are made, but will miss new and individual infections. This method can be very misleading if used as the only source of information.
- Remember in large herds or if a number of high producing cows are contributors, the dilution factor can hide a high count cow. Missing this could be a costly mistake!

Which Cows Are Infected?

To better understand how mastitis is being spread one needs to know which cows or groups of cows are infected. Dividing the herd into groups by age, stage of lactation and production will show any weak spots in mastitis control. To do this calculate the percentage of cows in each group that have greater than 200,000 cells/ml or a LS >4. For those enrolled on the BCDHIS individual somatic cell counting program, example summary tables are included below.

Age Summary

- GOAL:** – 100% of first lactation cows <200,000 cells/ml or LS <4,
- 2 year olds to average 100,000 cells/ml or less,
 - older cows to average 175,000 cells/ml or less.

AGE SUMMARY					
LACTATION NUMBER	TOTAL COWS	UNDER 200,000		200,000 AND OVER	
		PERCENT	COWS	PERCENT	COWS
FIRST	5	100	5	0	0
SECOND	9	100	9	0	0
THIRD PLUS	17	82	14	18	3

If goal is **not** being achieved, check and improve:

- heifer rearing programs and their environment for:
 - fly infestations,
 - calves sucking one another,
 - dirty and wet bedding,
 - imbalanced rations,
 - general hygiene problems.

Stage of Lactation Summary

- GOAL:** 100% of all lactating cows <200,000 cells/ml or LS <4.

STAGE OF LACTATION SUMMARY					
DAYS IN MILK	TOTAL COWS	UNDER 200,000		200,000 AND OVER	
		PERCENT	COWS	PERCENT	COWS
15 TO 60	10	80	8	20	2
61 TO 150	24	88	21	13	3
OVER 150	24	88	21	13	3

Early Lactation

If goal is **not** being achieved, check and improve:

- dry cow antibiotic therapy,
- drying off procedures,
- dry cow housing,
- calving procedures and calving areas ,
- ration for selenium/vitamin E imbalance.

Late Lactation

Increases in SCC by 50,000 to 100,000 cells/ml as the cow progresses through the lactation is possible due to natural wear and tear on the udder and as milk production declines.

If goal is **not** being achieved and SCC increases >100,000 cells/ml check and improve:

- culturing program and or frequency of testing,
- milking and cow stall hygiene,
- equipment function,
- broken stalls or other items that may cause injury.

SCC Management List

Ranks cows with LS >4 according to their percent contribution to herd SCC total. The cow with the greatest contribution will be on top of the list.

GOAL: – 0% of the herd on the list

SCC MANAGEMENT LIST										
COW NAME OR NUMBER	CURRENT TEST DAY					PERCENT CONTRIB TO HERD SCC TOTAL	TESTS OVER LS 4	LAC AVG LE	ESTIMATED LACTATION MILK LOSS \$	NOT
	DAYS IN MILK	LAC NUM	CELL COUNT	LS	MILK KG					
9	138	2	2489	8	28.2	17	2	4.6	\$ 260	
3	217	2	2425	8	26.3	16	6	6.6	\$ 460	
2	206	5	2398	8	16.4	10	5	6.5	\$ 450	
9	354	3	1334	7	16.4	5	2	3.4	\$ 140	
1	62	1	1010	6	21.3	5	1	3.5	\$ 70	
4	72	3	854	6	23.6	5	1	4.2	\$ 220	
9	215	2	1238	7	15.4	5	6	5.8	\$ 380	
0	348	3	967	6	19.0	5	5	4.8	\$ 280	
8	195	1	376	5	35.9	3	1	3.3	\$ 60	

Note:

- Cows contributing the most SCC will effect the Bulk Tank SCC and the calculated Herd Average SCC. **But**, it is important to realize this is more a measure of milk quality than mastitis.

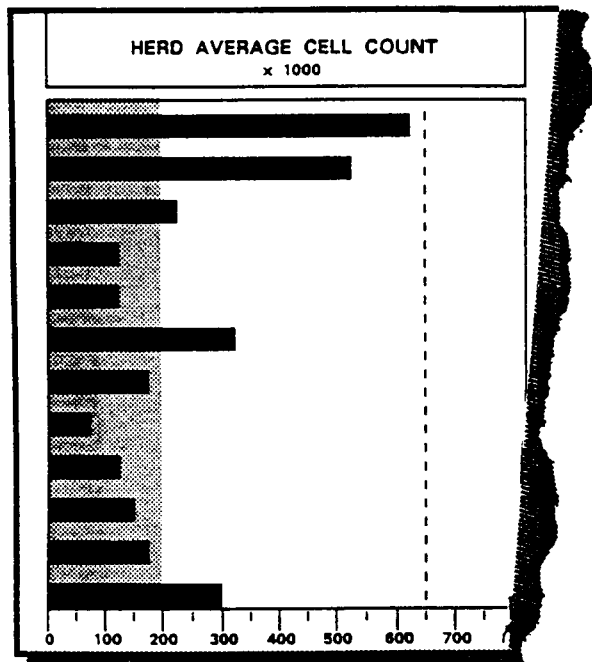
- Removing a cow that is the highest contributor will improve overall milk quality, but will not reduce the risk or source of mastitis if other cows with lower production but high LS/SCC's are not included in your mastitis control program.
- The list is only 20% of the herd or a maximum of 12 cows. If 12 cows are listed, check the individual herd report for more. Missing those cows not listed may prolong the problem or even make it worse!

Check for trends by:

- production,
- groups,
- milkers, herdpersons, etc.

Do the winter months or bad weather days haunt you?

Are there seasonal problems? Check a years worth of monthly bulk tank results or the Herd Average Cell Count (see below) for seasonal trends. Problems can be consistent with certain periods of the year or during periods of bad weather. Look for housing deficiencies (leaky roofs, wet stalls, poor ventilation), calving patterns, weather or demands on personal time (cropping, committee work) that may be linked to that time of year. Dollars invested in improving housing and labor supply may be a good long term investment!



Preventing the Spread

Mastitis organisms occur naturally in the environment. The difference between a herd with a mastitis problem and one without is one that has a good balance between the elimination of existing infections and the rate of new infections.

New Infection Rate

If the new infection rate (calculated below) is increasing:

- segregate any cow over 200,000 cells/ml. or >4 LS from clean cows and milk them last.
- if segregation is not possible clean the unit between each cow.
- review culturing program frequency and sampling procedure.
- treat with an appropriate therapy where advisable by your veterinarian and take care to observe treatment procedures and withdrawal times.
- cull chronic cows, e.g., cows continually freshening with mastitis.
- re-evaluate all milking practices. Clean and dry is the key.
- have milking equipment checked.
- review facilities for cow comfort and cleanliness.

$$\% \text{ Infection Rate} = 100 \times \frac{\text{no.of cows } >4 \text{ LS first time this lactation}}{\text{total number of cows milking}}$$

If the number is:

- i) Lower than previous tests: Excellent Work!
- ii) Same as the previous test: Good Work, review control program for improvements.
- iii) Higher than the previous test: Look Out! Go back to square one.

Existing Infection Rate

If the incidence of existing infections (calculated below) is high, but the new infection rate is low it suggests that problems are mainly chronic ones. Check:

- dry cow therapy program and drug sensitivity, and;
- re-evaluate culling criteria. Cows in this category are a contamination risk and often not worth the risk to clean cows.

$$\% \text{ Existing Infections} = 100 \times \frac{\text{no.of cows } >4 \text{ LS more than once this lactation}}{\text{total number of cows milking}}$$

If this number:

- i) Lower than previous test: Excellent Work!
- ii) Same as previous test: Stabilized - good work, but more work needs to be done.
- iii) Higher than previous test: Start Again! Missed a critical contamination source.

More Help Wanted?

Mastitis is too costly to risk. If in doubt consider asking your veterinarian, Dairy Processor Field Representative or BCMAFF Dairy Representative (Dairy Technologist, Dairy Specialist or District Agriculturist) for assistance. They will be glad to help!

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