USING RECORDS

TO

MANAGE SOMATIC CELL COUNT

Jim Salfer - U of MN Ext. Service

Level of Mastitis (SCC) =

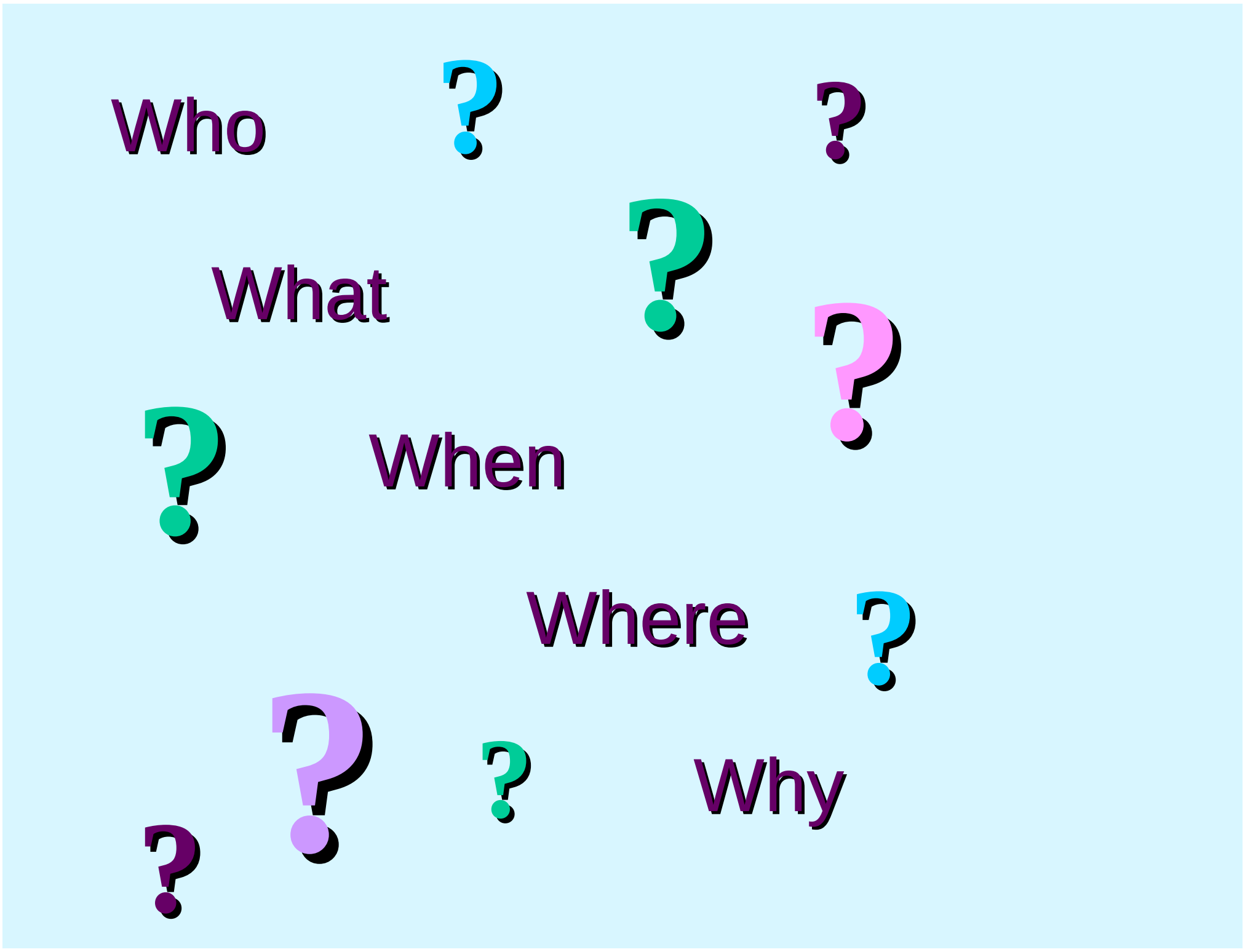
Number of Infected Cows

x

Duration of Those Infections

+

Rate of New Infections


Who
What
When
Where
Why

Somatic Cell Count and Relationship to Milk Losses

	Daily Yield Lost		***Lactation Yield Lost***	
Linear Score	First Lactation	Older Cow	First Lactation	Older Cows
	----------Lbs/Day--------		Lbs/Lactation	
0-2	0	0	0	0
3	0.6	1.3	200	400
4	1.3	2.6	400	800
5	2	3.9	600	1200
6	2.6	5.2	800	1600
7	3.3	6.6	1000	2000
8	3.9	7.9	1200	2400
9	4.6	9.2		

Records to Keep

- Bulk Tank SCC
- DHIA Data
- Bulk Tank Cultures
- Treatment Records
- Individual Cow Cultures

Contagious Organisms

- **Streptococcus agalactiae**
  Responds to treatment

- **Staphylococcus aureus**
  Does not respond well to treatment

- **Mycoplasma spp.**
  Uncommon in MN
  Does not respond to treatment

Environmental Organisms

- **Non ag strep**
  - Can be high in bedding
  - Can act chronic - particularly Strep uberius
- **Staph species**
  - Primarily Staph Epidermidis - normal inhabitant of skin
- **Coliform**
  - E Coli - source is feces
  - Klebsiella - Source can be bedding
- **Culture Bedding - < 1M / g**

Gram Positive/ Gram Negative

- **Gram Positive**
  - **Staphs**
  - **Streps**

- **Gram Negative**
  - **E. coli**
  - **Klebsiella**

Gram Positive Mastitis

- **Gram (+) become chronic if not treated with the right antibiotic**

- **NMC recommendations -- “treat Gram (+) lactating mastitis early”**

Gram Negative Mastitis

- University research -- coliform bacteria gone by the time we see abnormal milk
- Neutrophils (white blood cells) clear infection
- Clinical signs due to endotoxins (dead bacteria)
- Antibiotic treatment only supportive

University Of Minnesota
Laboratory for Udder Health
Minnesota Veterinary Diagnostic Laboratory
1333 Gortner Avenue
St. Paul, MN 55108

Phone: 612-625-7053 (direct)
Toll Free: 800-605-8787
Fax: 612-624-8707
E-mail: mastlab@tc.umn.edu

D-Lab #: D00-
Date Received: 3/27/00
Condition of Samples: Frozen
Mastitis Lab#: 17410

Samples taken on March 17, 18, 19, 20, 21

Bulk Tank Cultures

Mastitis Bulk Tank Culture Report

Sample Description: Bulk Tank

Type of Bacteria	colonies/ml	Low levels	Moderate levels	High levels	Very High levels
Strep agalactiae:	**0**	**<50**	50-200	200-400	>400
Staph aureus:	**730**	<50	50-150	150-250	**>250**
Non-ag Strep:	**790** 90% Strep uberis	500-700	**700-1200**	1200-2000	>2000
Coliforms:	**150** 100% Klebsiella	<100	**100-400**	400-700	>700
Staph species:	**350**	<300	**300-500**	500-750	>750

Notes:

The above table is intended to aid in interpreting your bulk tank sample results. If your results fall within LOW levels, you are probably doing a good job controlling mastitis. However, if your results are higher you may want to reconsider the effectiveness of your current mastitis control procedures.

Type of Bacteria	Usual Source of Infection	Major Means of Spread	Mastitis Control Measures to be Improved
Strep agalactiae	Infected udders of other cows in herd	Cow-to-cow by contaminated udder wash rag, teat cups, etc.	Use separate towels to wash/dry; teat dipping; dry cow treatment; eradication in special cases
Staph aureus	Infected udder contaminated bedding, etc.	Cow-to-cow by contaminated udder wash rag, Milking equipment or inadequate milking equipment	Use separate towels to wash/dry; teat dipping; dry cow treatment; culling of chronically infected cows; establishing milking order
Non-ag Strep	Environment of cow	Environment to cow by: wet, dirty lots; milking wet cows; poor cow prep; machine problems (reverse flow at teat); wet dirty bedding	Improve barn and lot sanitation; milk clean, dry cows; avoid air leaks and liner slips; change bedding frequently
Coliforms	Environment of cow	Environment to cow by: wet, dirty lots; milking wet cows; poor cow prep; machine problems (reverse flow at teat); teat injuries; hot humid weather; wet dirty bedding	Improve barn and lot sanitation; milk clean, dry cows; keep cows standing 1-2 hours after milking; avoid air leaks and liner slips; change bedding frequently
Staph species	Normal inhabitants of skin, some bedding	Poor teat dip coverage; poor cow prep; old bedding	Teat dipping; adequate cow prep; more frequent bedding changes

Cow Cultures

Rec'd cold

COW #	BACTERIA ISOLATED	RELATIVE #
4	**Staph aureus**	H
19	Staph species, Enterobacter	L/L
104	Staph species	H
105	**Staph aureus**	H
106	Strep uberis, Klebsiella, Staph species	H/M/L
108	**Staph aureus**, Strep dysgalactiae	M/L
111	Staph species	L
122	Staph species, Enterobacter	H/L
137	Staph species	L
138	Staph species	H
142	Staph species	L
161	Staph species	H
166	Staph species	L
198	Yeast, Staph species	M/H
200	Staph species	L
201	Staph species	H
207	Staph species	H
211	Staph species, Enterobacter	M/L
215	Staph species	L
222	Strep dysgalactiae	H
226	Staph species	M
234	Strep dysgalactiae, Staph species	M/H
243	**Staph aureus**	L
245	Staph species	H
253	Staph species	H

Strep. Ag. Problem

- Responds well to treatment
- Identify infected Cows
- Work with Veterinarian on Treatment/Culture Protocol

Focus on teat dip coverage

S. Aureus. Problem

- Does not respond well to treatment
- ID infected Cows (ear tags, ear notches, brand)
- Segregate and milk last to prevent spread
- Infections caught early may respond to treatment
- Focus on teat dip coverage to prevent colonization

Environmental Problem

- Varied response to treatment
- Often caused by milking wet, dirty teats
- Focus on Teat Ends!!!!
- Focus on clean, dry comfortable environment

DHIHerdcode	Type Test Code	Assoc	FREP	Breed	Cows
41-99-9989	31 DHI-AP	97	97BD	H	

Days	Test Interval	Lab Date	Processsed

4K FARMS

18038 203RD AVE

DHI Records

Herd Summary

Dry Period Summary			
Avg Days	Cows by Days Dry		
	< 40	40-70	> 70
82	1	27	2
	3%	90%	7%

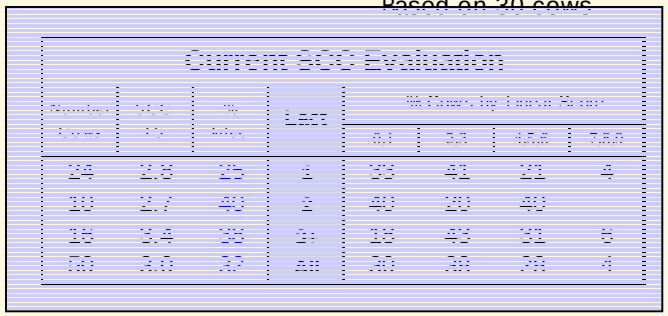
Based on 30 cows

Peak and Persistency

305 ME		Prod Index	Lact	Cows	DIM	Peak		MLM	
Milk	$ Value					DIM	Milk	Current	C-L
26,701	3,141	100	1	26	170	75	78	72	+1.4
27,368	3,196	102	2	12	206	62	91	61	-13.3
25,784	3,081	98	3+	19	221	69	98	66	-3.7
26,557	3,134	100	All	57	193	70	87	68	-2.8

Peak Ratio (1st/others) is 0.82

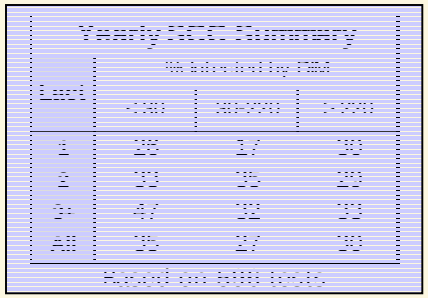
Daily Milk	
DHI	3497
Sold	3536
Shipped	99%
Value	$490
$/cwt	14.00

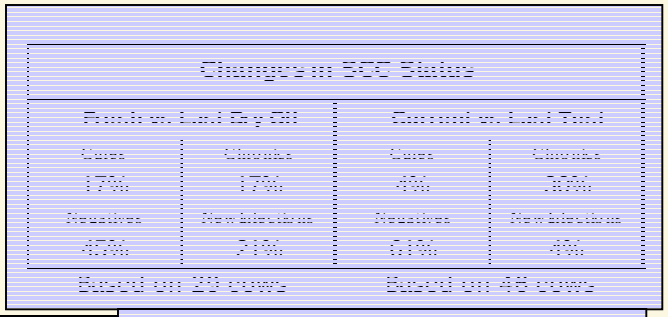


Management Level Milk

Annual Summary					Current Test			
Days in Milk			All		All	Days in Milk		
<100	1-200	<200	Cows	Lact	Cows	<100	1-200	>200
63	76	87	74	1	72	67	72	80
59	82	94	82	2	61	45	78	92
61	86	101	86	3+	66	48	70	109
62	81	95	80	All	68	56	72	92

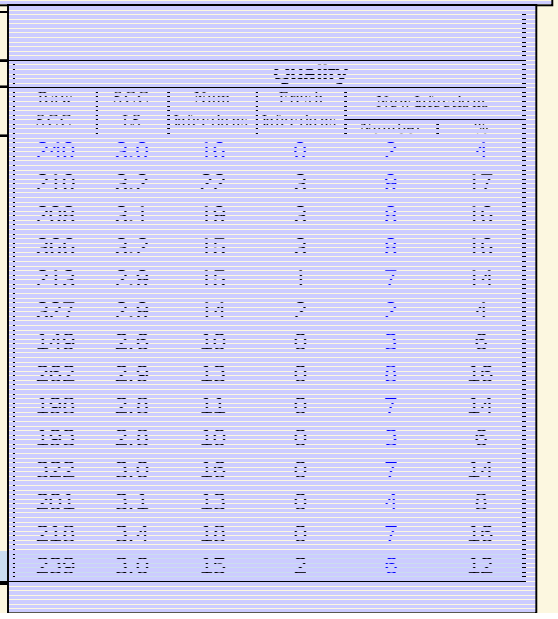
Based on 7 tests





Production Averages

Rolling Herd			Test Day				Date	Quantity						
Milk	Fat	Protein	All Cows	% in Milk	Milk	% Ship		Milk Cows	Fresh Cows	DIM	Milk	MLM	% Fat	% Protein
24604	892	758	57	88	61	99	8/25/99	50	5	193	70	68	3.5	3.1
24356	880	751	59	88	63	103	7/22/99	52	6	182	71	71	3.7	3.0
24311	877	750	59	83	60	101	6/24/99	49	7	207	73	79	3.5	3.0
24252	873	751	57	86	67	100	5/20/99	49	3	203	78	87	3.8	3.0
24227	867	751	56	91	68	101	4/19/99	51	1	204	75	82	3.8	3.0
24407	866	757	58	93	72	101	3/19/99	54	2	188	77	85	3.8	3.1
24591	869	762	55	91	71	99	2/19/99	50		198	78	81	3.5	3.1
24590	867	761	53	96	72	100	1/21/99	51	1	180	75	75	3.8	3.1
24542	864	760	54	94	72	100	12/23/98	51	3	168	77	72	3.5	3.0
24451	859	757	53	92	73	101	11/20/98	49	2	154	79	70	3.5	3.1
24353	854	755	58	84	65	101	10/22/98	49	3	158	77	67	3.4	3.1
24421	859	756	57	86	60	102	9/23/98	49	9	148	70	64	3.4	3.0
24630	870	762	57	79	58	101	8/19/98	45	6	161	73	71	3.4	3.0
			56	89	66	100	AVG	50	4	180	75	75	3.6	3.1



DHI Records

PAGE #

DHI SOMATIC CELL REPORTS
I. HERD SUMMARY

Minnesota DHIA

HERD CODE

41 99 9998 4K FARMS

TYPE OF TEST: OS-AP

DATE SAMPLED: 12/31/97

DISTRIBUTION OF COWS BY LINEAR SCORE (ROUNDED)

Sample Dates	Herd Avg LS	Herd Avg SCC	<= 2 NO.	<= 2 PCT	3 NO.	3 PCT	4 NO.	4 PCT	5 NO.	5 PCT	6 NO.	6 PCT	7 NO.	7 PCT	8 & 9 NO.	8 & 9 PCT
12/31/97	3.6	655	11	22	12	24	5	10	6	12	6	12	4	8	3	6
11/25/97	3.6	673	13	24	14	26	5	9	7	13	6	11	5	9	3	6
10/30/97	3.4	619	13	23	14	25	5	9	6	11	6	11	5	9	3	5
10/08/97	3.5	684	12	23	14	26	5	9	6	11	6	11	5	9	3	6
08/26/97	3.8	788	10	22	12	26	5	11	6	13	6	13	4	9	3	7
08/12/97	3.2	304	12	30	5	13	6	15	10	25	3	8			1	3
07/14/97																
07/01/97	3.0	326	21	45	6	13	5	11	10	21	2	4	1	2	2	4
06/04/97	3.0	424	21	39	8	15	6	11	10	19	3	6	2	4	2	4
05/01/97	3.2	388	21	37	9	16	6	11	13	23	3	5	2	4	2	4
04/16/97	3.3	402	23	37	10	16	8	13	13	21	3	5	3	5	3	5
03/13/97	3.3	425	23	35	12	18	8	12	13	20	3	5	3	5	3	5

COWS WITH SCC GREATER THAN 200,000

New NO.	New PCT	Chronic NO.	Chronic PCT
11	22	11	22
13	24	10	19
15	27	7	13
15	28	8	15
14	30	7	15
1	3		
9	19	7	15
7	13	12	22
8	14	14	25
15	24	10	16
18	28	7	11

100 Lbs Milk Lost Herd/30 Days

When are cows being infected?

Yearly SCC Summary			
Lact	% Infected by DIM		
	< 30	30-220	> 220
1	26	17	30
2	33	35	29
3+	47	32	33
All	35	27	30

Based on 596 tests

Adapted from the DHI Somatic Cell Reports

Annual timeline -- Where do infections occur?

When are cows being infected?

Early Lactation = Dry Cow Problem

Mid or Late Lactation = Cow Prep or Lactation Housing Problem

TION BY LACTATION NUMBER AND STAGE

YEAR TO DA

Lac. No	Less Than 30 Days No. Cows	LS. Avg.	LS 4+ Pct.	30-220 Days No. Cows	LS. Avg.	LS 4+ Pct.	More Than 220 Days No. Cows	LS. Avg.	LS 4+ Pct.	Avg. LS.
1	27	4.2	59	142	3.5	46	62	3.9	50	3.7
2	19	2.7	32	131	3.2	37	42	4.1	43	3.4
3+	12	4.6	58	101	3.2	34	33	3.1	36	3.4
AVG	58	3.7	50	374	3.2	40	137	3.5	45	3.3

CURRENT SAMPLE

	Less Than 30 Days No. Cows	LS. Avg.	LS 4+ Pct.	30-220 Days No. Cows	LS. Avg.	LS 4+ Pct.	More Than 220 Days No. Cows	LS. Avg.	LS 4+ Pct.	Avg. LS.
	1			10	3.7	50	5	3.3	40	3.4
	1	2.7		15	3.8	47	3	6.5	100	4.6
				10	3.0	40	2	3.2	50	3.0
AVG	2	1.3		35	3.6	46	10	4.2	60	3.6

MNSC1A