ONTARIO DAIRY INDUSTRY
WORKING GROUP

SCC Trouble Shooting for Farm Advisors

Impact on Ontario Dairy Farms

David Kelton, DVM, PhD
Department of Population Medicine
University of Guelph

SCC 400 – Just Two Months Away!

The goal is to maintain high milk quality ALL YEAR

Opportunity!

Tools to get there:

- Know where we are – current situation
- Understand the importance – cost of elevated SCC
- Finding the producers at risk – variability and seasonality – and tools to help
- Tools available for advisors
- Elevated SCC versus Elevated Iodine – good news

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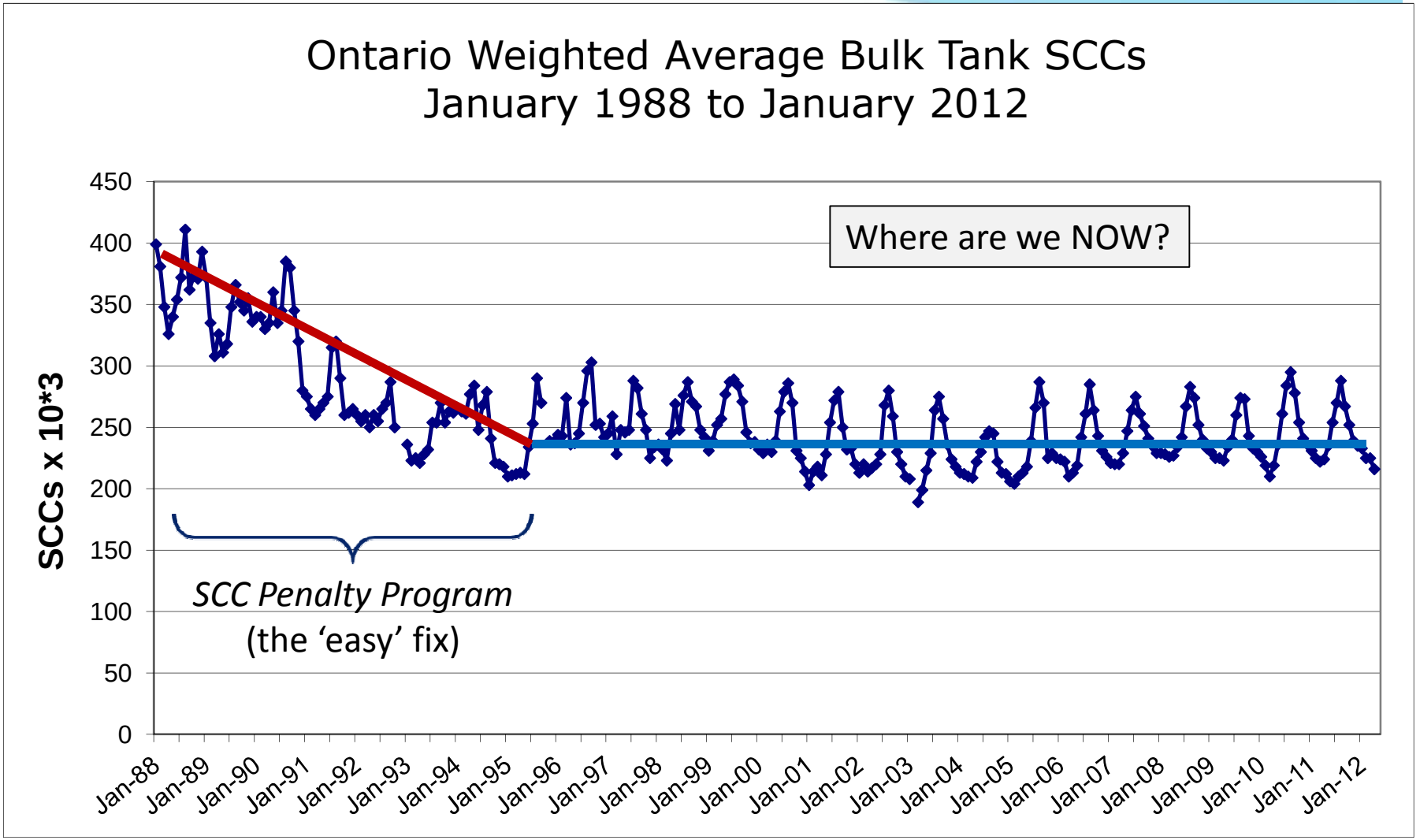
1989 – 1995: From 800 to 500 K



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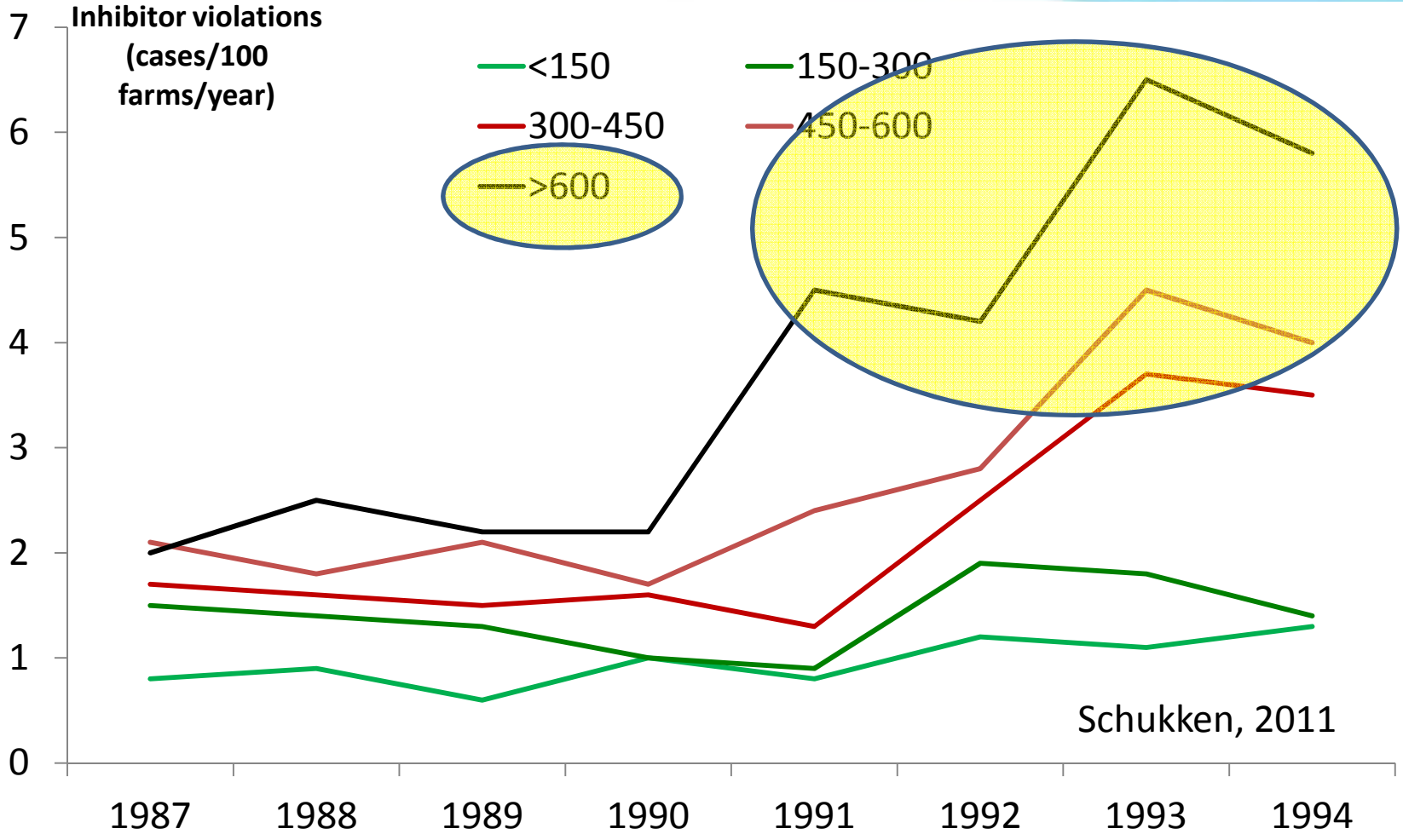
But - MORE Inhibitor violations!



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Decrease in Penalty Level

If the SCC Penalty Level dropped from 500 to 400 TODAY….what would happen?

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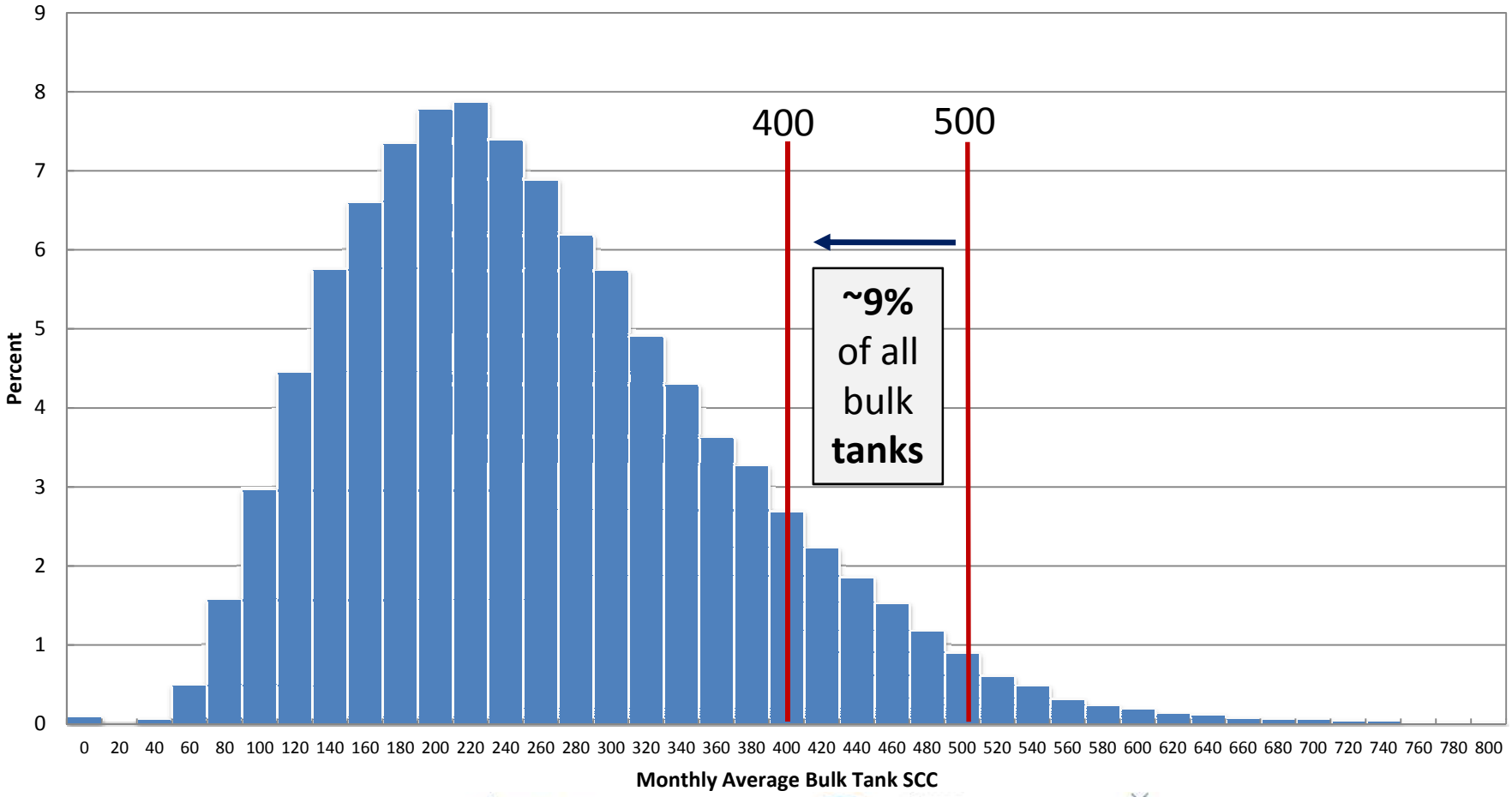
Penalty Threshold from 500 to 400

Distribution of the Monthly Average Bulk Tank SCC for the Years May 2010 until April 2012



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Penalty Threshold from 500 to 400

SCC Test Results – Weighted Counts by Range

Weighted Monthly Averages

Month	Weighted Average	Producers Tested	< 151	151 - 225	226 - 299	300 - 399	400 - 499	Penalty Range >499
Apr-11	224	4,193	21.9	29.5	24.1	17.0	6.1	1.5
May.	235	4,184	18.5	29.3	24.2	18.0	7.9	2.1
Jun.	254	4,179	13.6	27.0	25.8	21.1	9.0	3.5
Jul.	270	4,173	10.0	23.7	26.0	24.3	11.8	4.3
Aug.	288	4,169	7.5	20.3	25.1	27.4	13.5	6.1
Sep.	267	4,165	9.3	25.7	26.3	25.2	10.1	3.5
Oct.	252	4,156	11.7	27.5	28.3	22.2	8.1	2.2
Nov.	239	4,150	14.7	30.8	26.0	19.4	7.3	1.8
Dec.	235	4,144	16.8	30.5	25.3	18.9	6.8	1.6
Jan.	233	4,139	17.3	30.6	25.3	18.2	6.8	1.7
Feb.	225	4,136	20.6	31.6	23.6	17.2	5.6	1.3
Mar.	225	4,129	21.1	30.9	23.1	17.4	6.0	1.5
Apr-12	216	4,121	22.8	31.8	23.3	16.0	4.8	1.3
12-Month Average	245	4,154	15.3	28.3	25.2	20.4	8.1	2.6
6-Month Average	229	4,137	18.9	31.0	24.4	17.9	6.2	1.5

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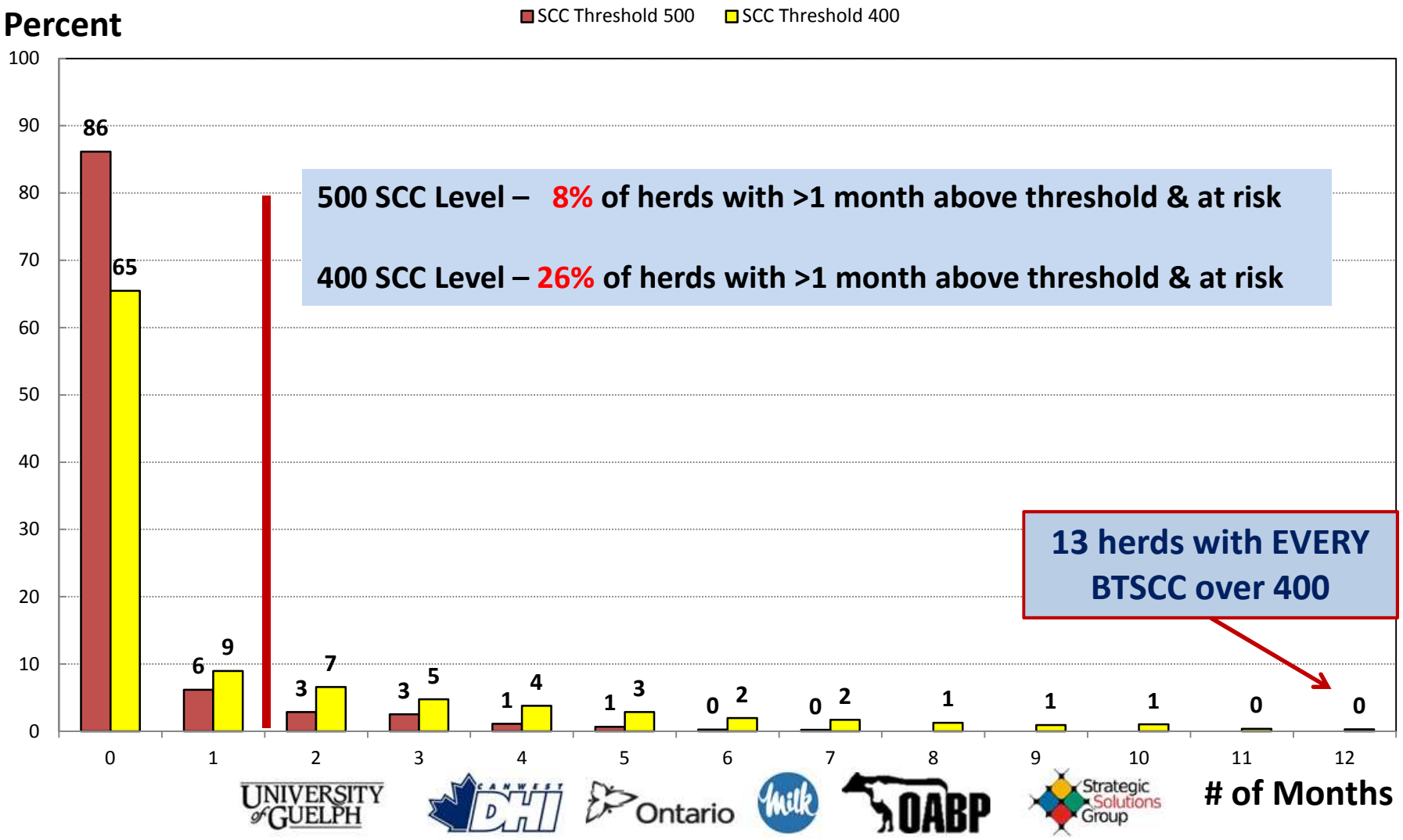
Penalty Threshold from 500 to 400

Percent of Herds by # of Months over SCC Threshold
May 2011 - April 2012



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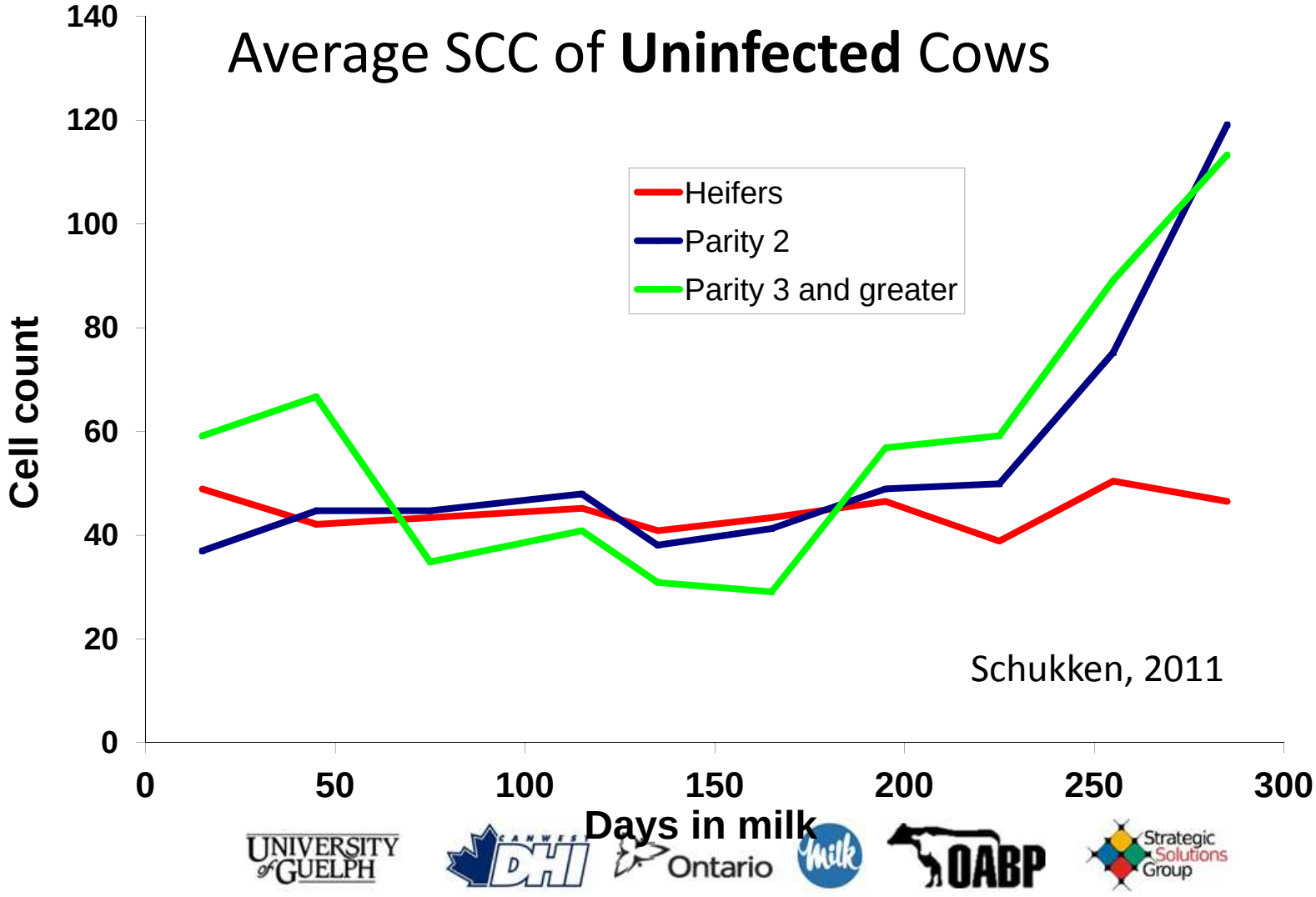
"Normal" SCC's for Clean Cows

FAQ: Can SCC's for Cows or Herds Get Too Low?



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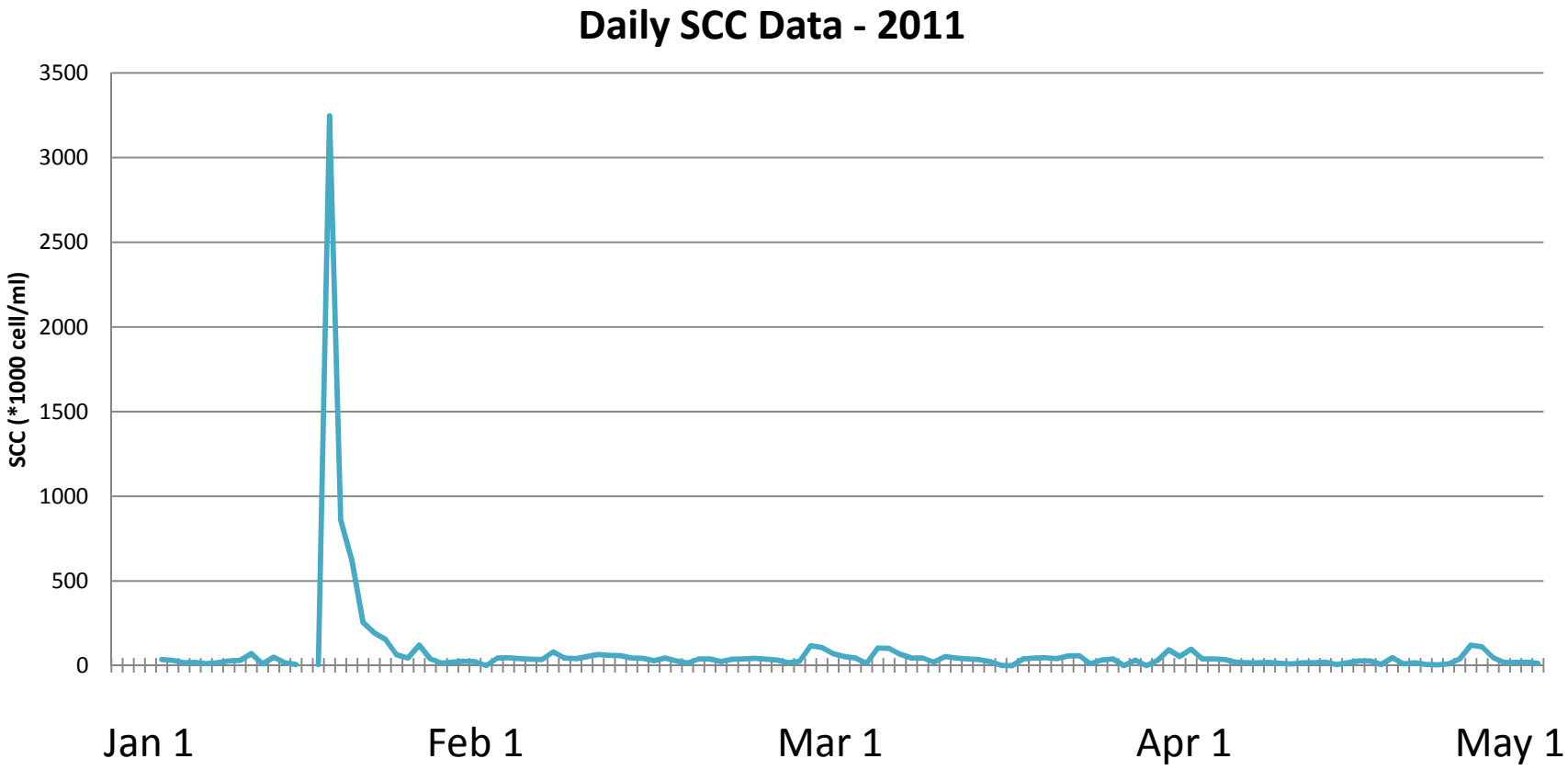

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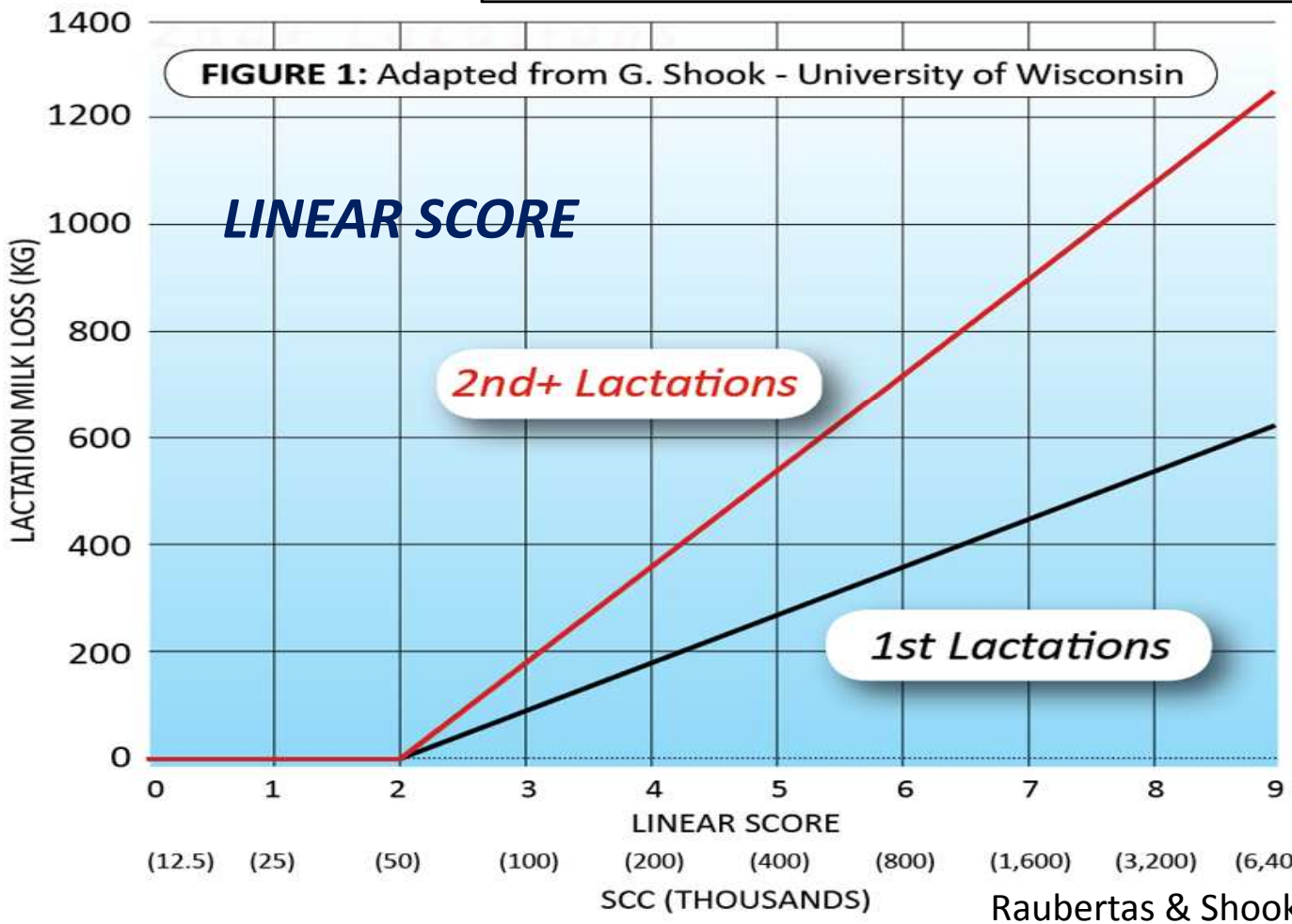
Clinical
• Diagnosis
• Treatment
• Discarded Milk
• Labour
• Premature Culling
Financial Losses
Associated with Mastitis
Subclinical
REDUCED MILK PRODUCTION
Milk Loss Due to Elevated SCC

ONTARIO DAIRY INDUSTRY WORKING GROUP

Milk Loss Due to Elevated SCC

FAQ: What is the cost of elevated SCC?



Raubertas & Shook, JDS, 1982.

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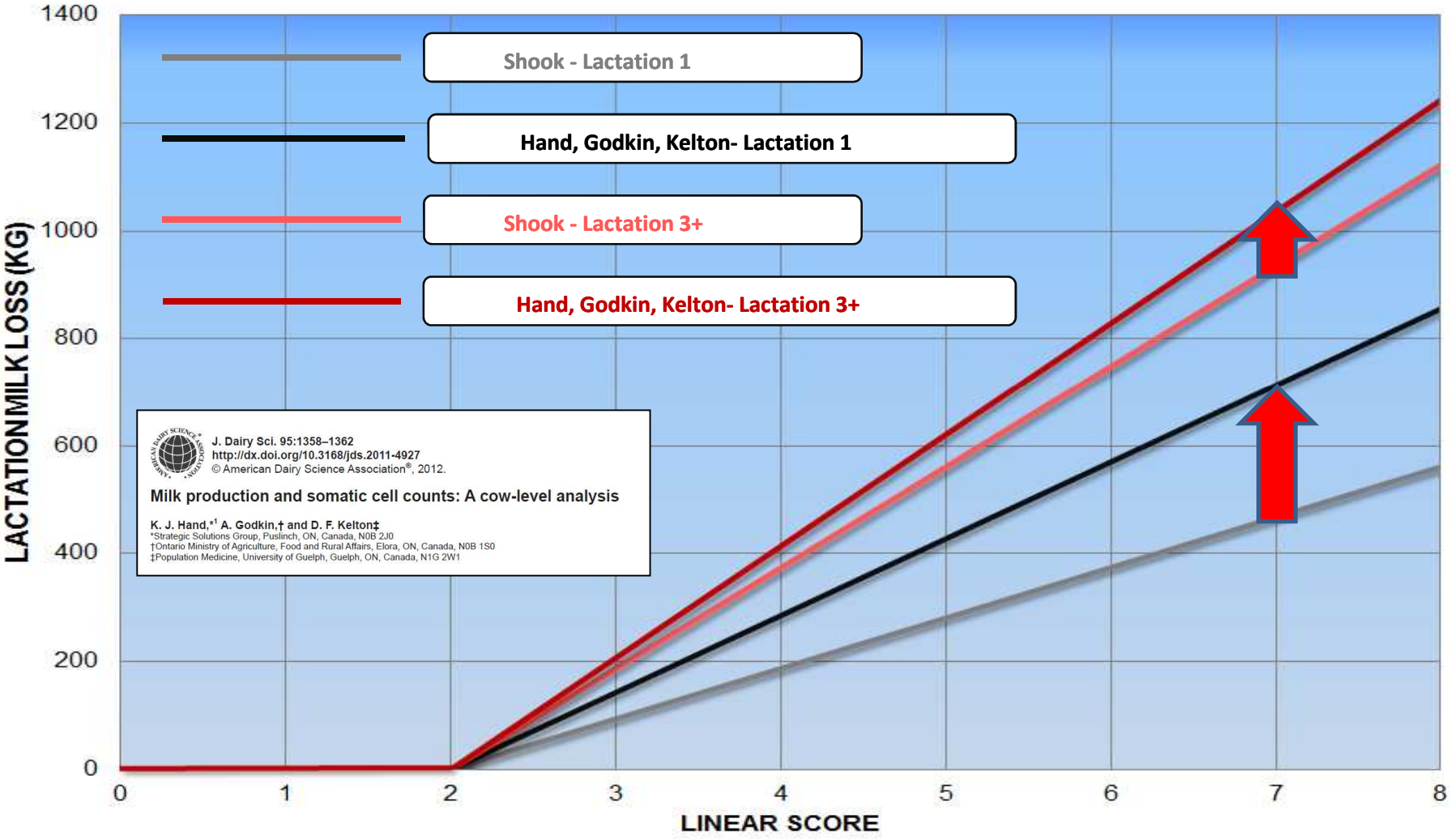
Milk Loss Due to Elevated SCC



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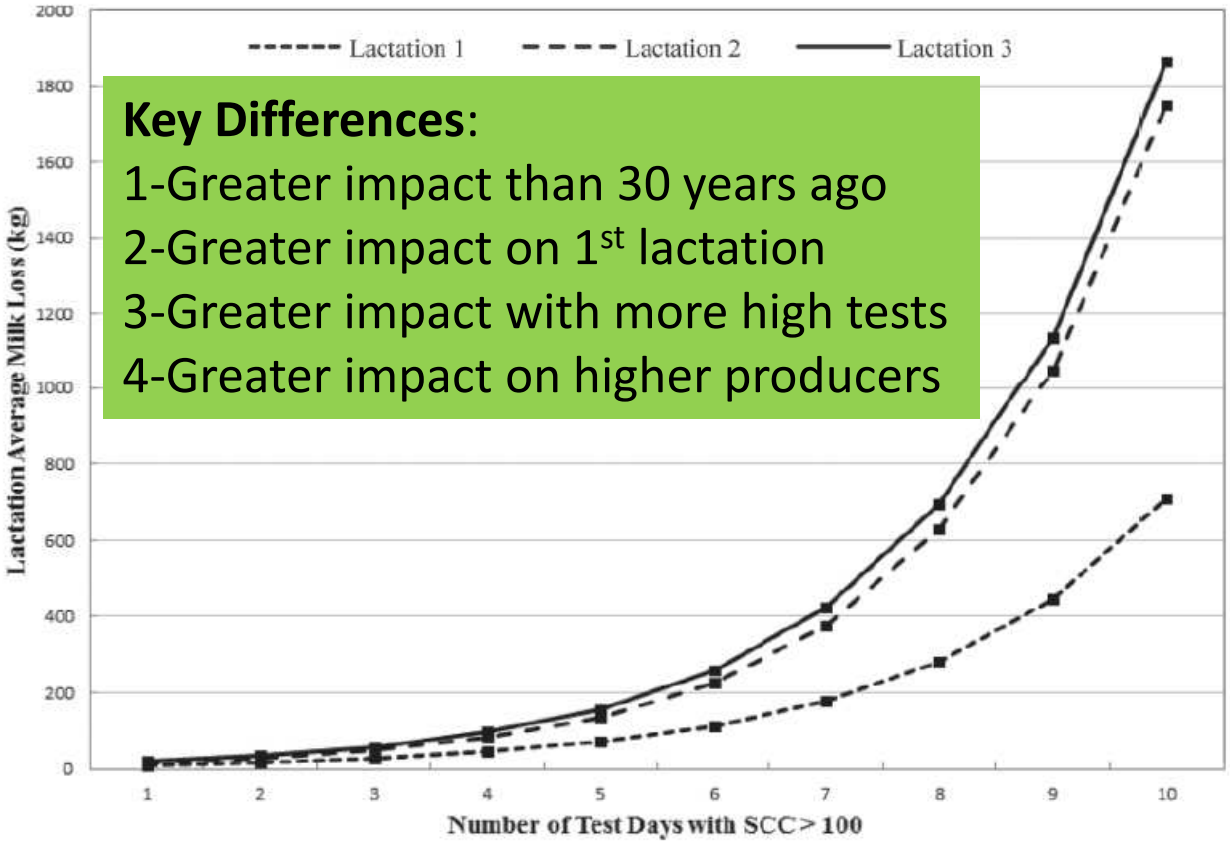
Milk Loss Due to Elevated SCC



Key Differences:

1-Greater impact than 30 years ago

2-Greater impact on 1st lactation

3-Greater impact with more high tests

4-Greater impact on higher producers

Figure 1. Estimated lactation milk loss (kg) plotted against the number of lactation test days where SCC exceeded 100 ($\times 10^3$ cells/mL; S100).

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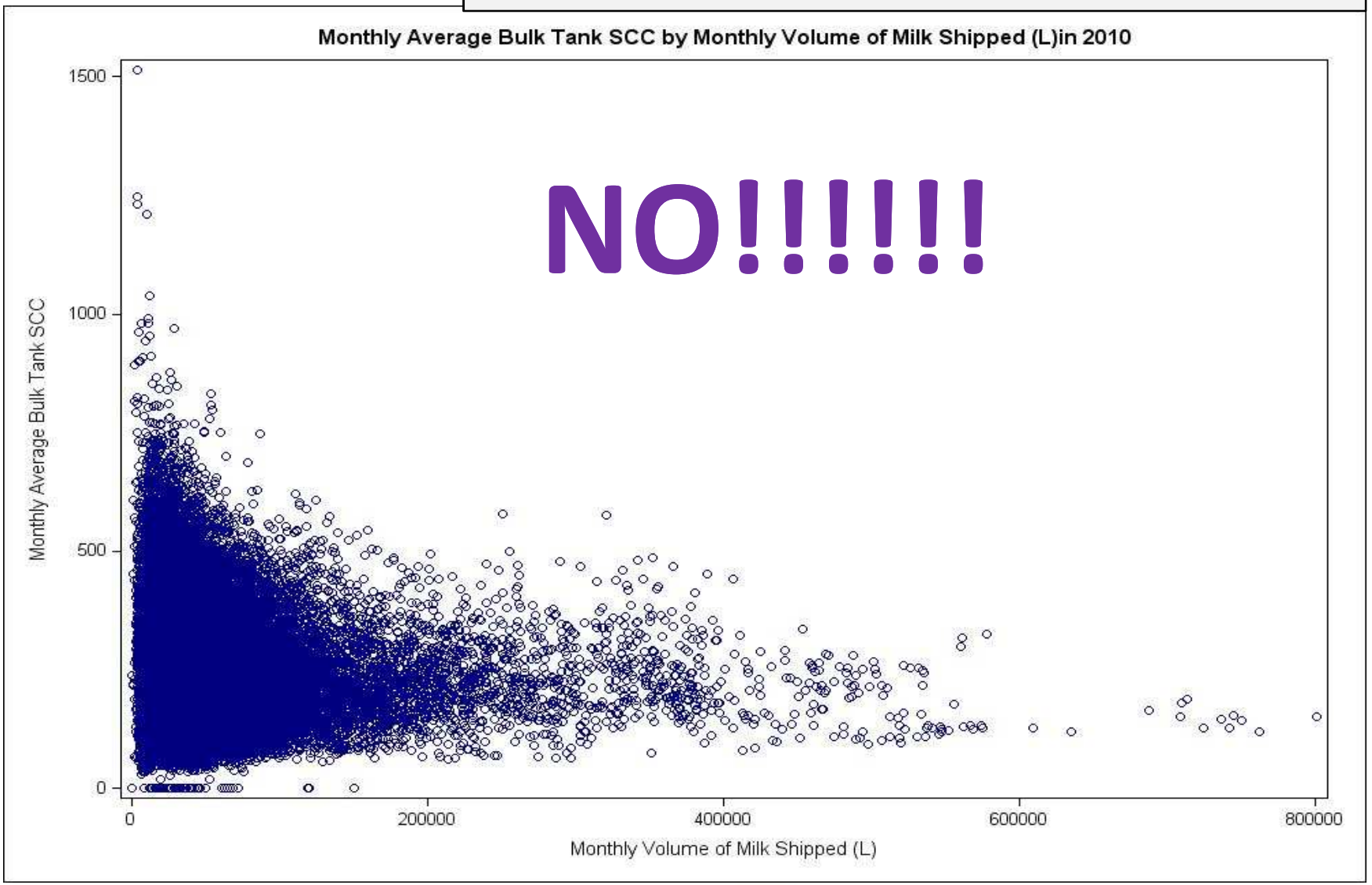
Is BTSCC Herd Size Dependent?

FAQ: How do we find the 'problem' herds?



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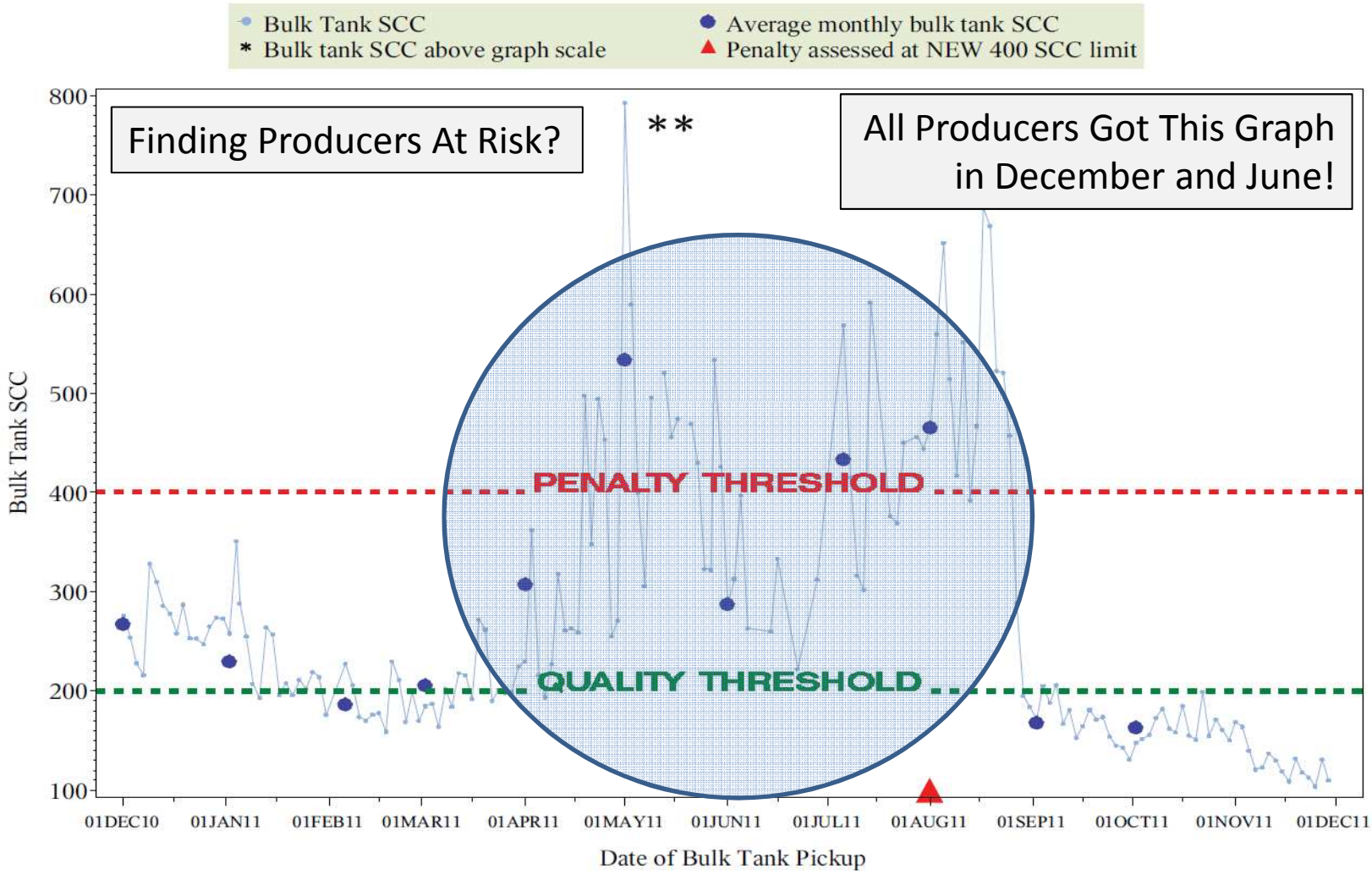
Variability in 'Daily' Bulk Tank SCC's



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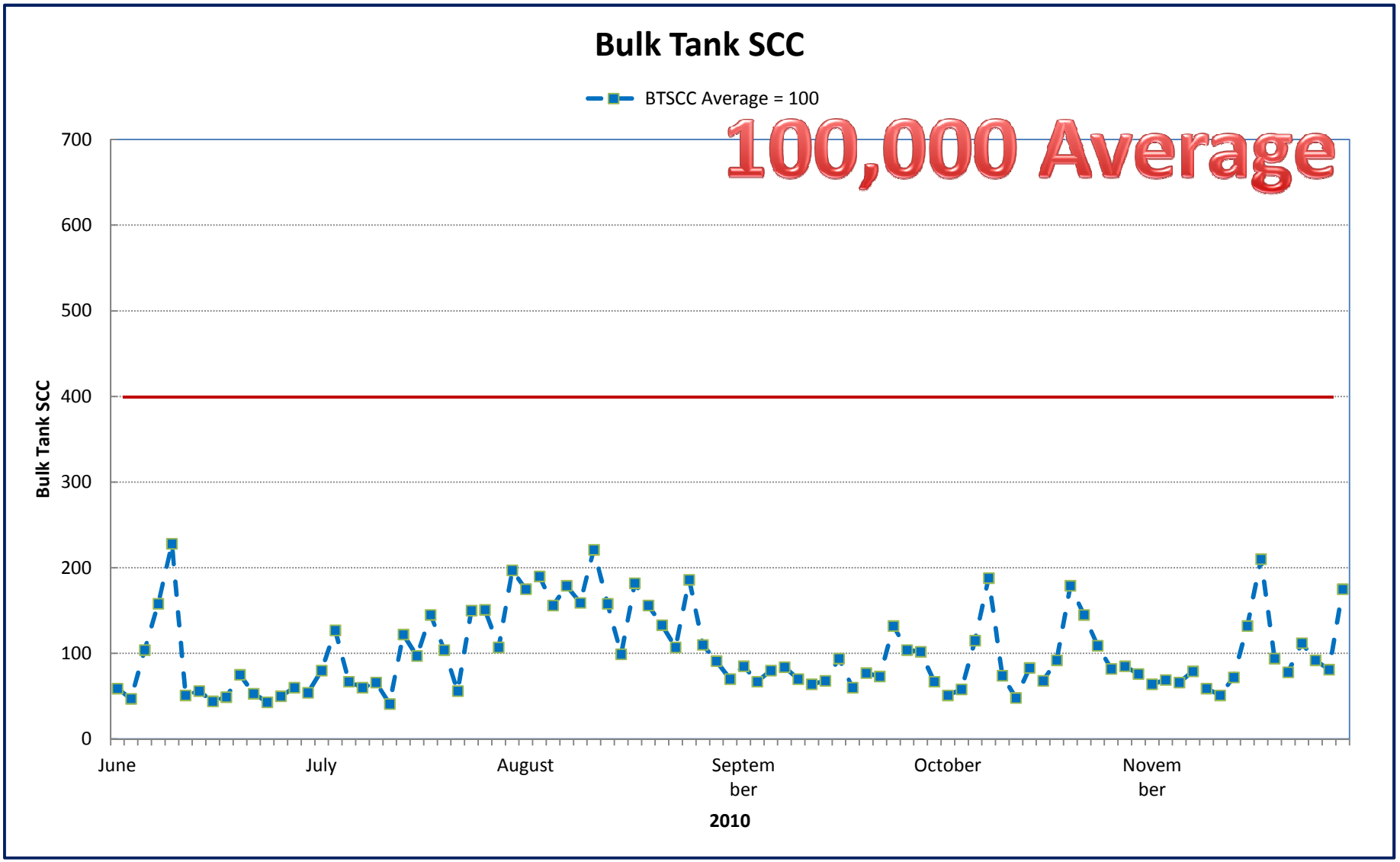
ONTARIO DAIRY INDUSTRY WORKING GROUP

Variability in 'Daily' Bulk Tank SCC's

FAQ: How variable can BTSCC's be?



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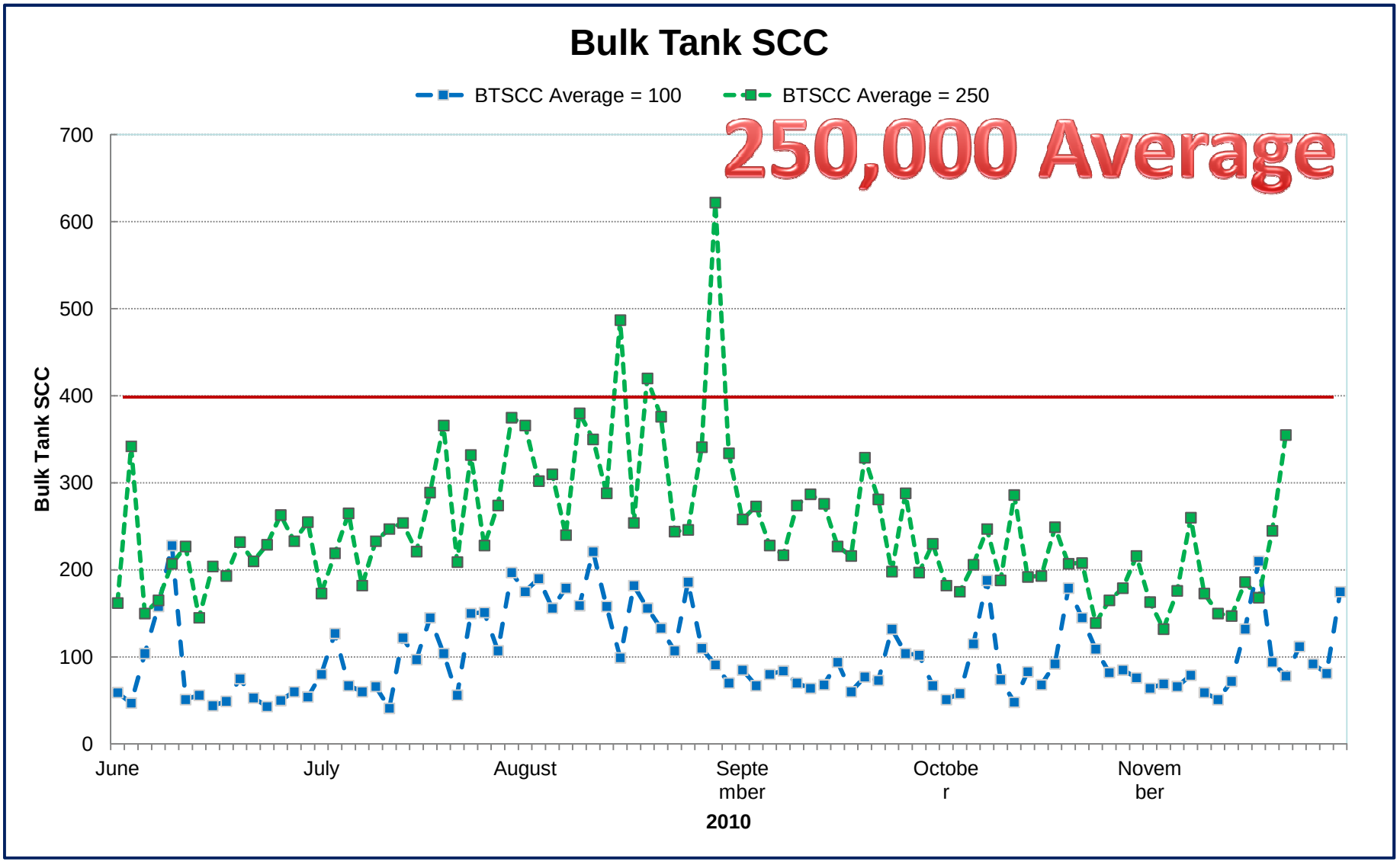

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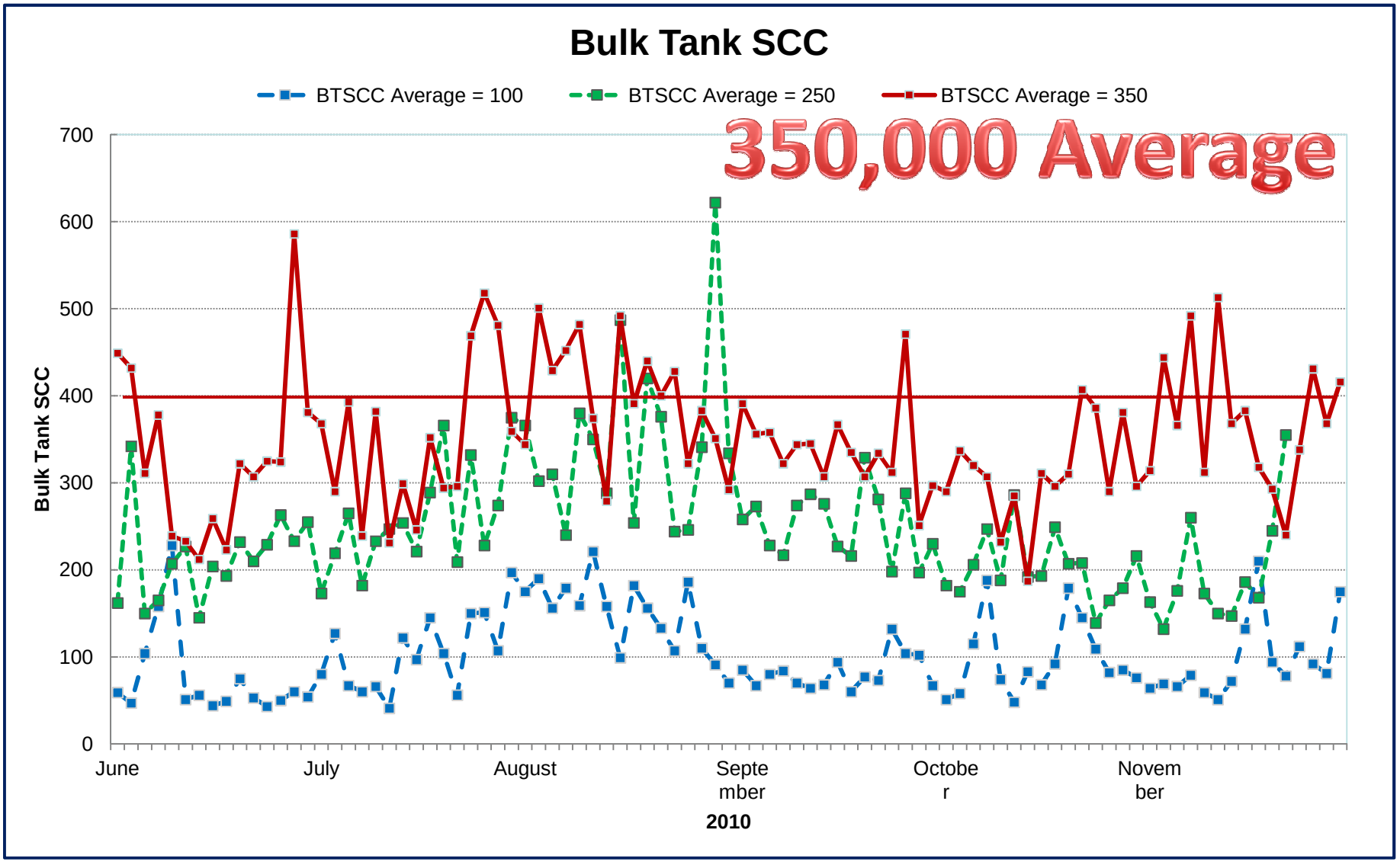

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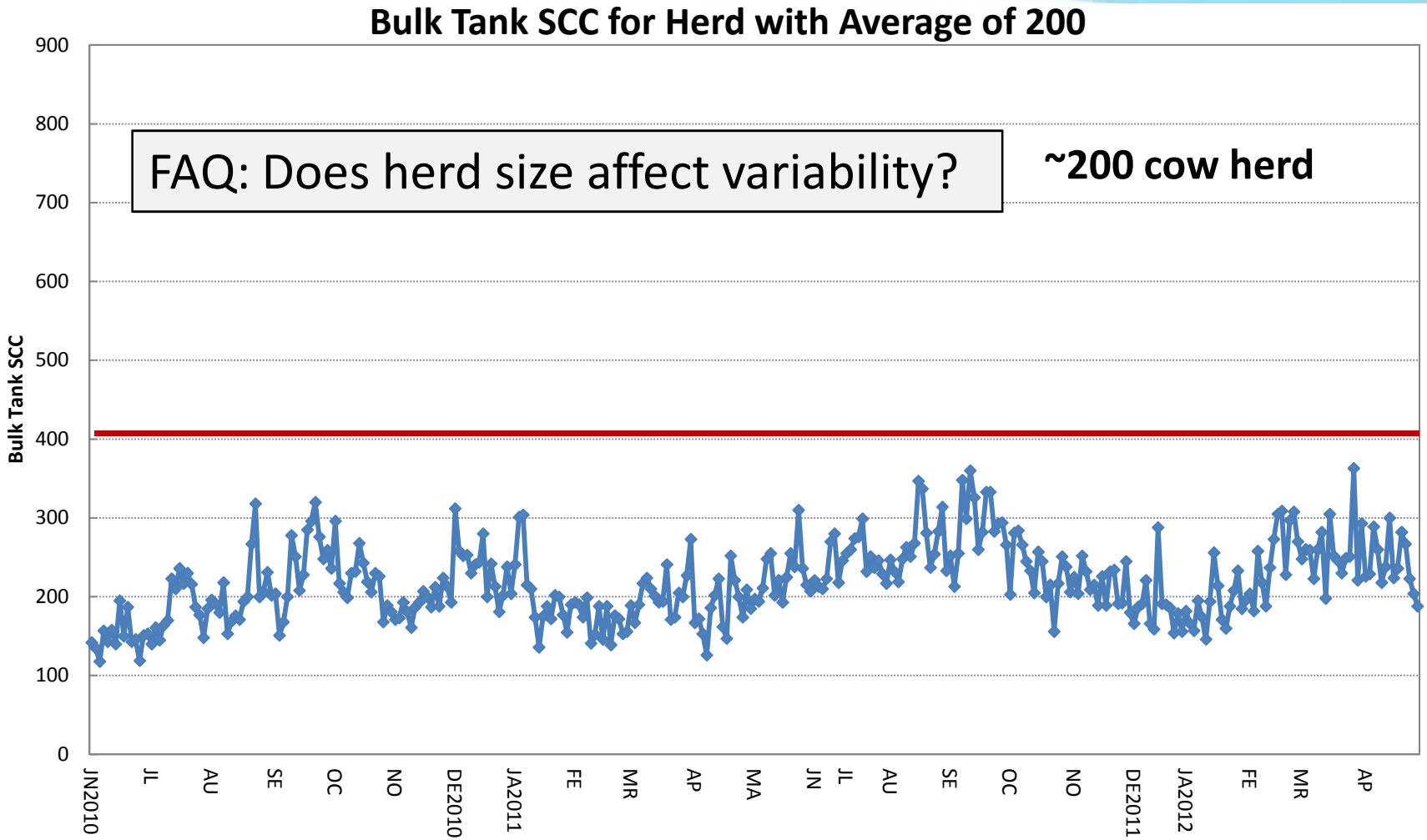
Variability in 'Daily' Bulk Tank SCC's



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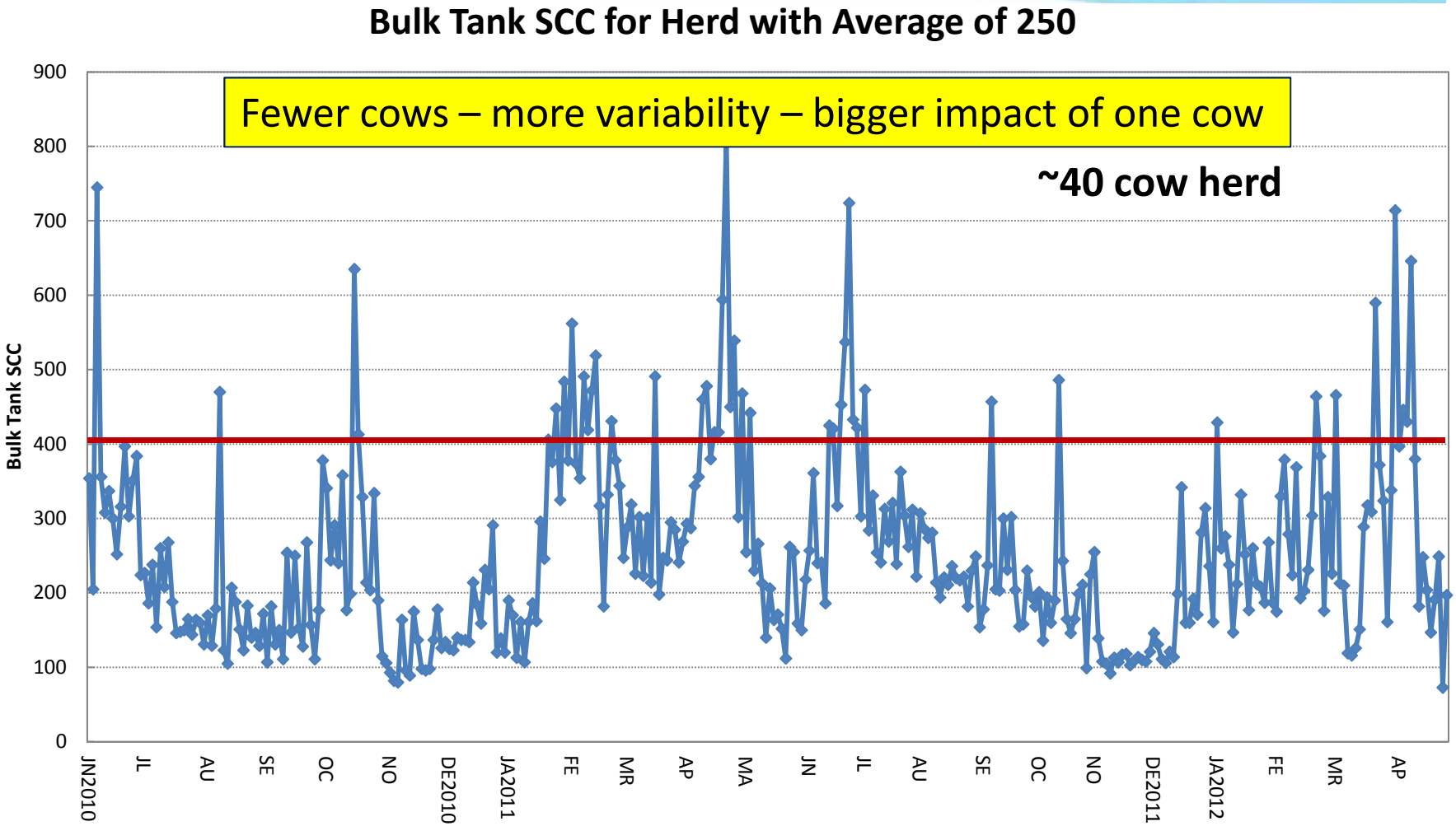
Variability in 'Daily' Bulk Tank SCC's



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Risk of Penalty with Change in SCC Penalty Level

FAQ: How many more penalties do we expect?

Expected change in penalties assessed:

- Monthly BTSCC data from 1st 11 months in 2009 & 2010
- 372 SCC Penalties in 2009 & 345 SCC Penalties in 2010
- Compared odds of being penalized if the SCC penalty level was 400 as compared to 500
- Results: Ontario dairy herds were **3.8 times as likely to incur a SCC Penalty at the 400 level**.
- So…….expect ~ 1,300 SCC penalties **if nothing else changes**

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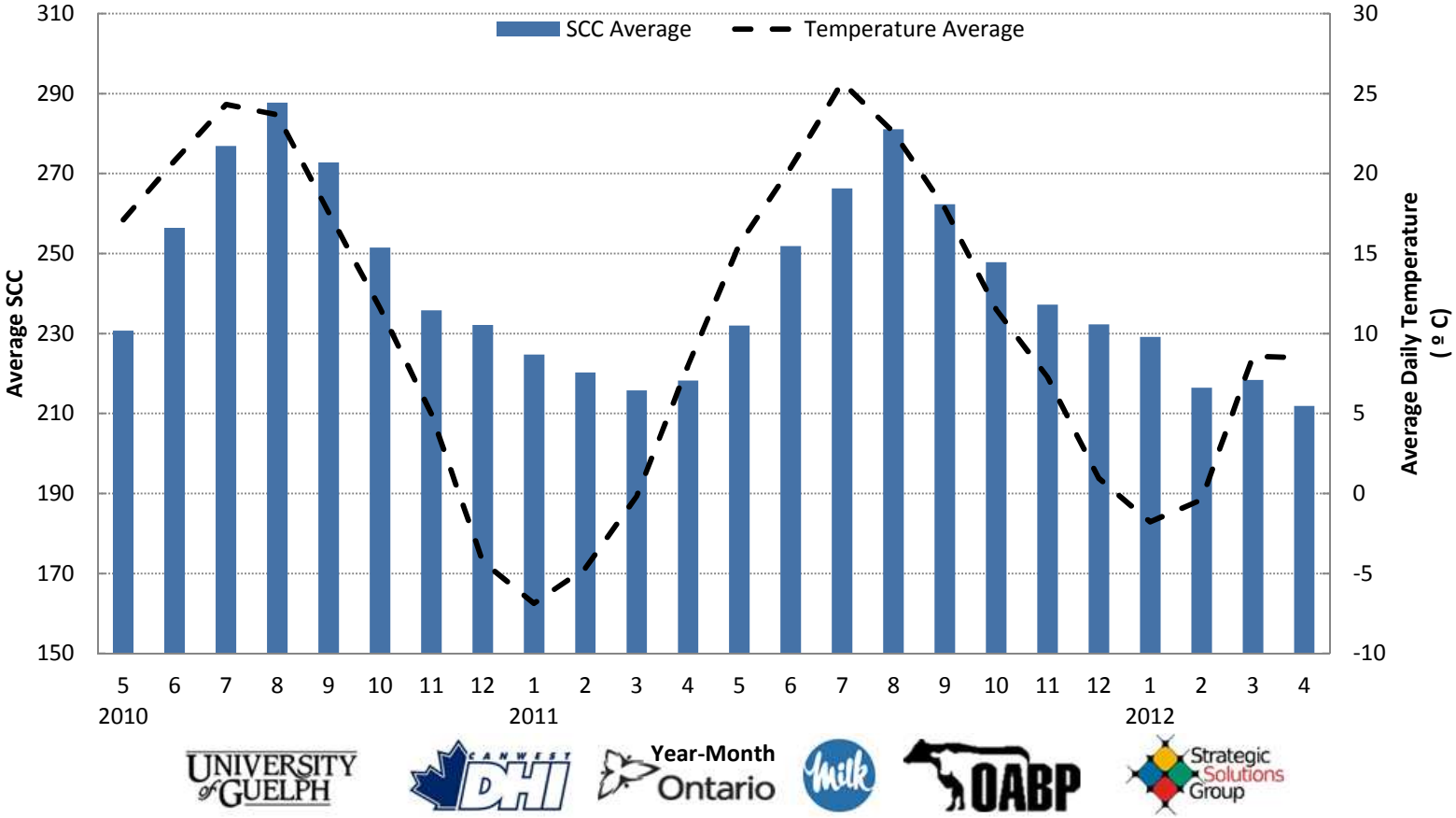
Penalty Threshold or Environment?

FAQ: Is this just a summer problem…..a seasonal issue?

Average Bulk Tank SCC in Oxford and Perth Counties
and
Average Daily Temperature (º C, London Airport)



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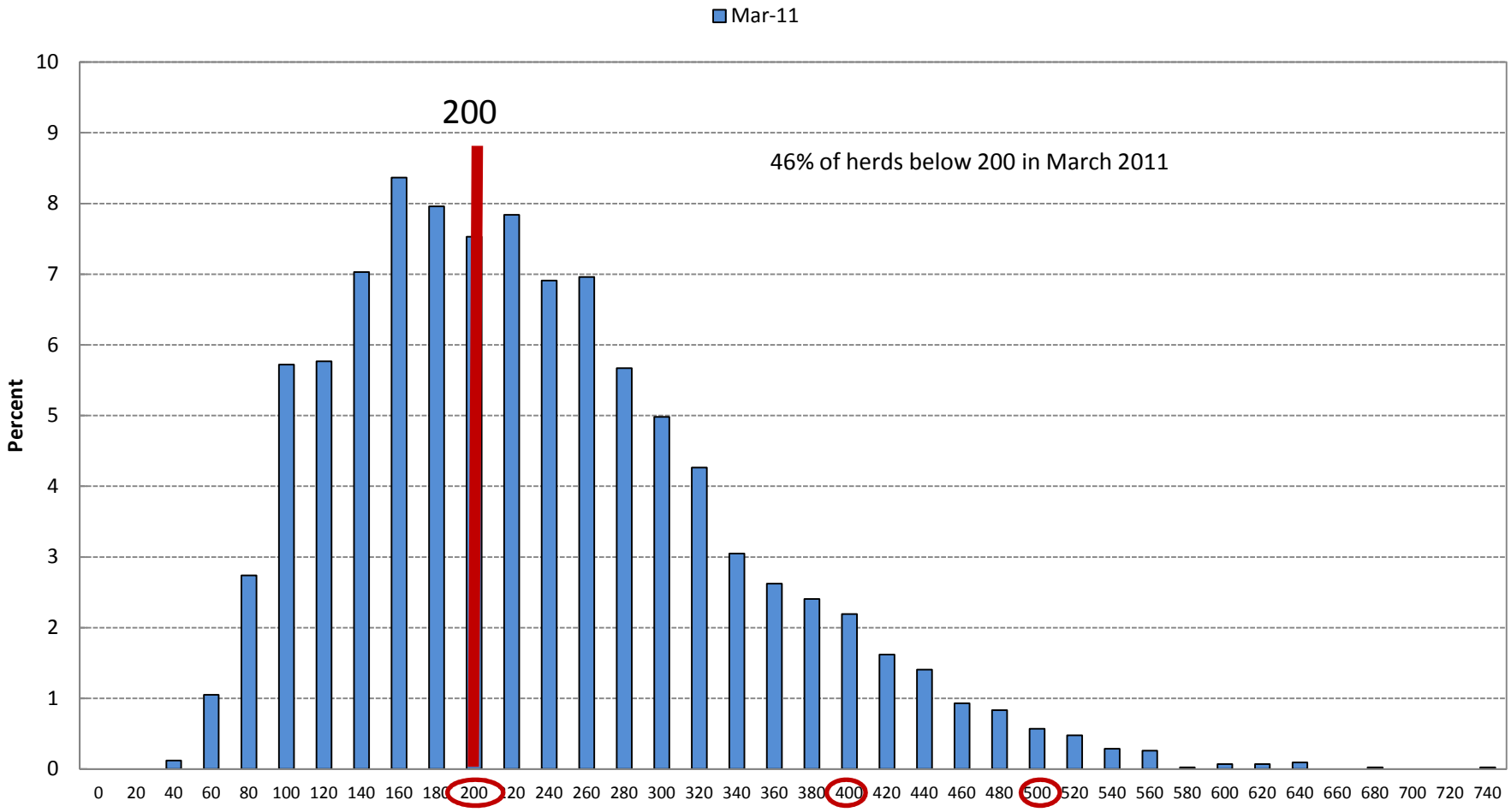
Low SCC in Hot Summer Months

Distribution of Monthly Bulk Tank SCC
March and August 2011



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Low SCC in Hot Summer Months

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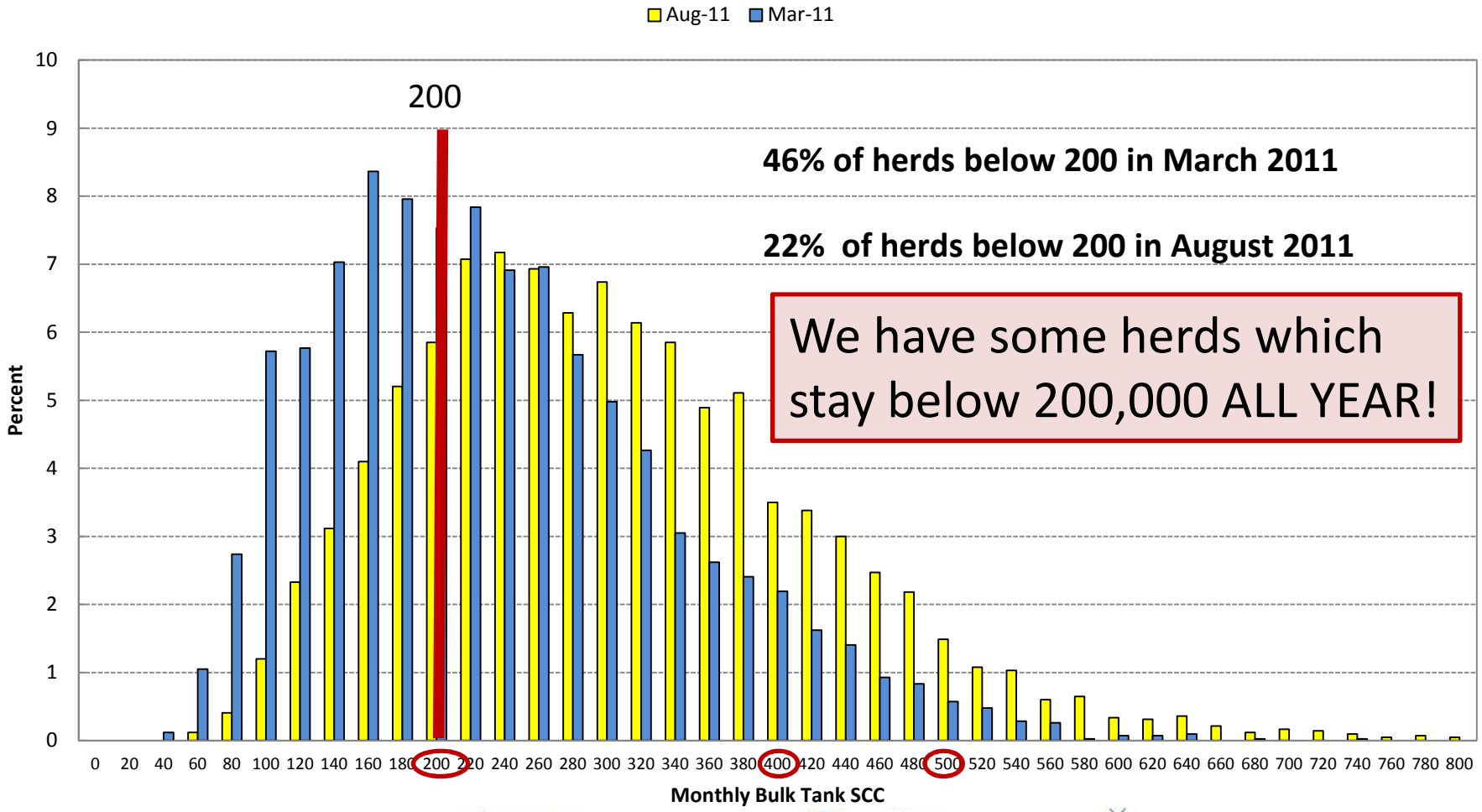

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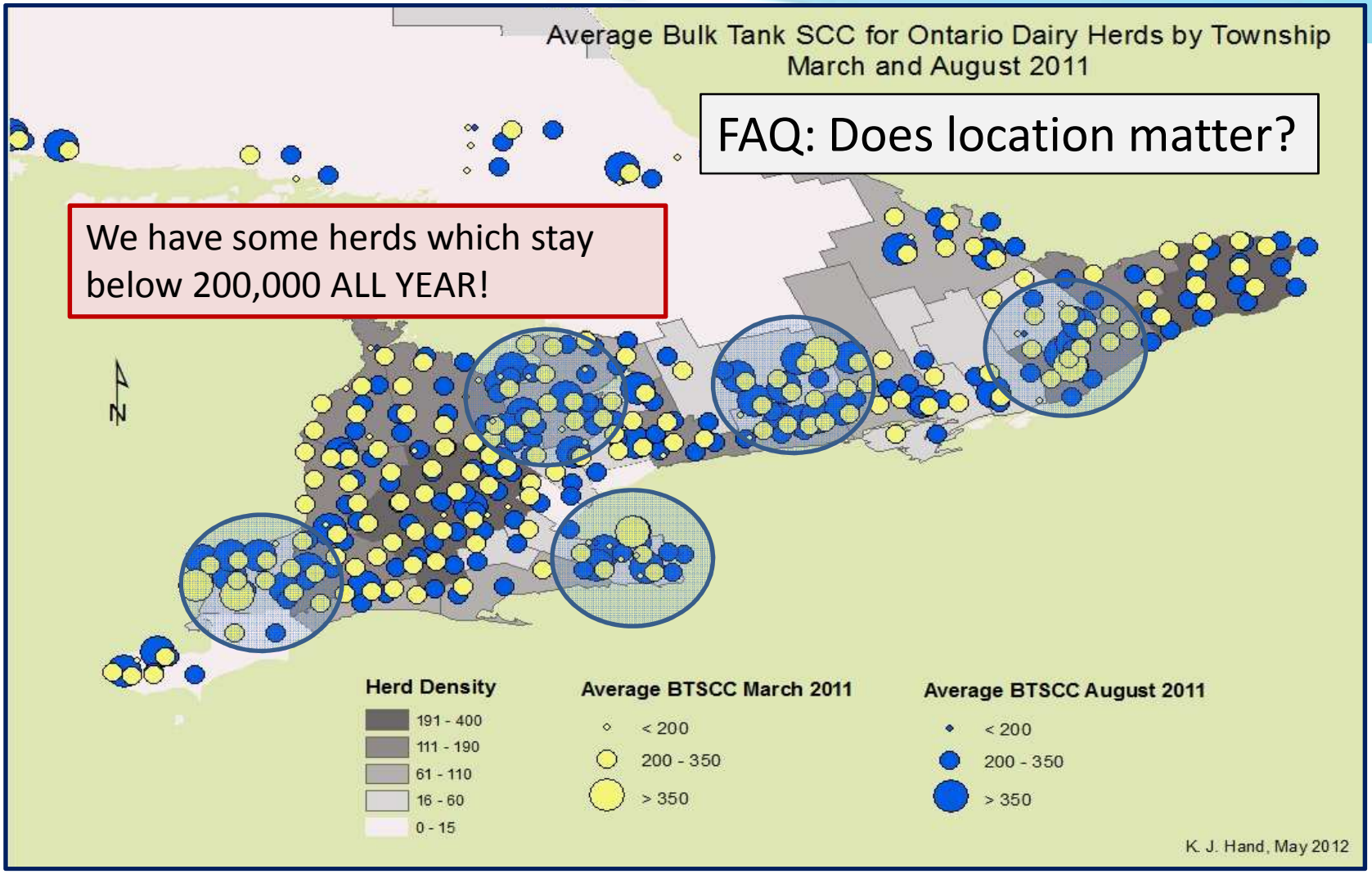
Low SCC in Hot Summer Months



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Good News & Bad News!

FAQ: Are producers responding?

G. Raw Milk Quality

1. Summary of Monthly Quality Penalties – 12 Month Comparison

# of Monthly Penalties															
	Bacteria			Inhibitor			Somatic Cell			Freezing Point			Non-Grade A		
Month	This Yr	Last Yr	% Chg	This Yr	Last Yr	% Chg	This Yr	Last Yr	% Chg	This Yr	Last Yr	% Chg	This Yr	Last Yr	% Chg
May-11	11	14	-21.4	1	3	-66.7	10	22	-54.5	17	13	30.8	16	22	-27.3
Jun.	8	0	--	0		-100.0	14		-48.1	10	17	-41.2	13	27	-51.9
Jul.	4	0	--			-75.0	2		5.0	23	18	27.8	19	23	-17.4
Aug.	4	4	0			3.3			4	14	9	55.6	18	20	-10.0
Sep.	3	1	200			0.0			5	17	17	0.0	11	22	-50.0
Oct.	3	3	0			00.0				12	18	-33.3	17	13	30.8
Nov.	6	4	50			00.0			0	20	15	33.3	9	19	-52.6
Dec.	3	1	200	4		100.0	14		00.0	8	10	-20.0	6	10	-40.0
Jan.	6	2	200	7	0	--	14	9	55.6	16	31	-48.4	10	17	-41.2
Feb.	9	2	350	9	4	125.0	7	7	0.0	19	13	46.2	9	14	-35.7
Mar.	5	5	0	1	1	0.0	9	13	-30.8	11	17	-35.3	7	24	-70.8
Apr-12	1	8	-87.5	2	1	100.0	10	12	-16.7	14	15	-6.7	6	17	-64.7
Totals	63	44	43.2	32	23	39.1	259	312	-17.0	181	193	-6.2	141	228	-38.2

Penalties!!!

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Monitoring of Cow SCC - DHI

FAQ: What tools do we have to help?

Does monitoring cow SCC impact SCC penalties?

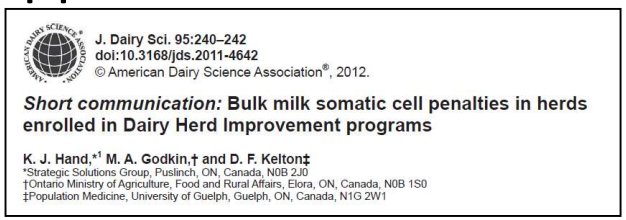
2009 Data for 2,898 **DHI herds** and 1,186 **non-DHI herds**

48,250 monthly bulk tank average SCC values

Bulk Tank SCC penalty levels of 400 and 500

Controlled for season, milk, fat and protein shipped

- Median BTSCC for DHI herds was 228,000
- Median BTSCC for non-DHI herds was 250,000



Non-DHI herds had higher BTSCC's and were **1.4 times** as likely to be penalized at the 400 SCC penalty threshold as DHI herds

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Melanie Quist Moyer
CanWest DHI, Guelph, Ontario

DHI Resources

- Monthly Individual Cow SCC
- Mastitis3 PCR Test

MASTITIS3 CONTAGIOUS MASTITIS ID

Dairy Comp 305

- Computerized records system
- Used to trouble-shoot SCC problems

Dairy Comp® Herd Management Software

Ontario Dairy Industry Working Group

Monitoring of Cow SCC - DHI

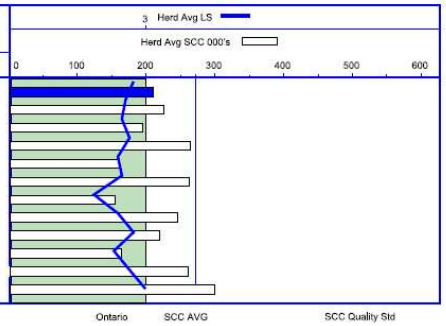
SCC REPORT — *Herd Summary*

CANWEST DHI 1-800-549-4373

NAME	HERD NUMBER	PAGE	TEST DATE
Ontario Sample Herd CanWest DHI	ON	1 of 1	03 Oct 2009 SERVICE P12

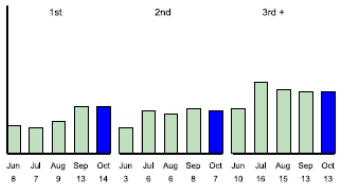
HERD SUMMARY

Test Date	Avg LS	Avg SCC 000's	> LS 4 or 200,000	
			Cows	%
03 Oct 09	**3,1**	**210**	**34**	**27**
04 Sep 09	2.9	225	34	27
07 Aug 09	2.8	195	30	24
08 Jul 09	3,0	264	29	25
05 Jun 09	2.7	161	21	18
06 May 09	2.8	263	29	25
09 Apr 09	2,1	155	18	16
07 Mar 09	2,7	246	28	25
07 Feb 09	3,1	219	34	31
09 Jan 09	2,6	164	22	22
10 Dec 08	3.0	262	28	25
08 Nov 08	3,4	300	35	31

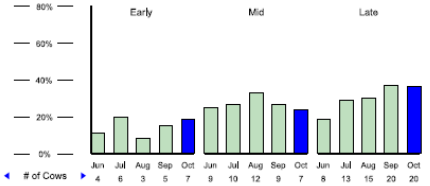


TREND FOR PERCENT OF GROUP > LS 4 OR 200,000

LACTATION GROUP



STAGE OF LACTATION

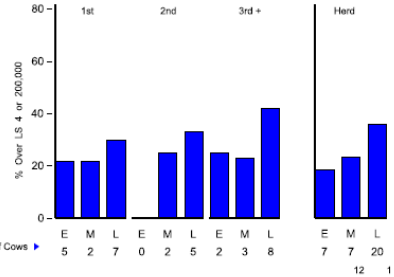


HERD PROFILE

DIM	1st	2nd	3rd+	All
Early 100	**2.9** 23	**1.3** 8	**2.6** 8	**2.5** 39
Mid 200	**2.6** 9	**3.2** 8	**3.1** 13	**3.0** 30
Late	**3.2** 23	**3.6** 15	**3.9** 19	**3.5** 57
All	**3.0** 55	**2.9** 31	**3.4** 40	**3.1** 126

Linear Score — Cows

LACTATION GROUP & STAGE SUMMARY



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SCC REPORT — *Management List*

CANWEST DHI 1-800-549-4373

NAME	HERD NUMBER	PAGE	TEST DATE
Ontario Sample Herd CanWest DHI	ON	1 of 1	03 Oct 2009 SERVICE P12

Cow Name / Chain #	Test Day Data: Lact #	Days in Milk	Milk kg	LS	SCC 000's/ml	% Of Herd SCC	LS: # Tests > 4	LS: Lact Avg	Estimated Lactation Milk Loss $	Tank SCC: This cow removed	Tank SCC: Cumul cows removed	Notes
3674 3674	1	305	37.0	7	1841	**8**	9	6	**239**	195	195	
3389 3389	4	247	23.5	7	1897	**5**	9	7	**617**	200	184	
3593 3593	2	229	32.5	7	1279	**5**	5	4	**277**	201	175	
3687 3687	1	277	26.5	7	1481	**5**	7	5	**176**	201	166	
3691 3691	1	26	30.5	7	1110	**4**	1	7	**284**	203	158	
3584 3584	2	247	32,0	6	1026	**4**	5	3	**164**	203	151	
3447 3447	3	156	50.5	5	532	**3**	4	5	**391**	206	146	
3267 3267	5	201	35.0	6	729	**3**	7	6	**479**	205	140	
3507 3507	2	252	34.0	6	721	**3**	9	6	**491**	206	135	
3597 3597	2	136	29.0	6	838	**3**	1	3	**151**	205	129	
3725 3725	1	36	37,0	6	591	**3**	2	7	**302**	206	124	
3485 3485	3	260	21.0	6	1012	**3**	9	6	**491**	206	119	
3557 3557	2	122	21,5	6	793	**2**	4	6	**504**	207	115	
3483 3483	3	267	27.0	6	634	**2**	7	5	**403**	207	111	
3710 3710	1	147	26.0	6	600	**2**	2	5	**176**	207	107	
3517 3517	2	245	33.0	5	484	**2**	4	3	**113**	208	104	
3709 3709	1	59	21,5	6	679	**2**	1	4	**145**	207	100	
3650 3650	1	404	35,0	5	415	**2**	2	3	**88**	208	97	
3277 3277	5	229	40.0	5	343	**2**	8	5	**378**	209	94	
3481 3481	3	195	26.0	5	481	**2**	6	6	**441**	208	91	
3410 3410	4	95	36.5	5	317	**1**	1	3	**126**	209	88	
3468 3468	3	168	39.0	5	292	**1**	1	3	**139**	209	86	
3457 3457	3	211	21,5	5	407	**1**	1	2	**50**	209	84	
3676 3676	1	195	31,5	4	263	**1**	4	3	**88**	210	82	
3440 3440	3	310	18,5	5	429	**1**	1	2	**0**	209	80	
3482 3482	3	84	35.0	4	203	**1**	0	3	**76**	210	79	

RPT50050 12 1

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MASTITIS 3
CONTAGIOUS MASTITIS ID

- PCR test…..identifies DNA
- Identifies 3 contagious pathogens
  - *Staph. aureus*
  - *Strep. agalactiae*
  - *Mycoplasma bovis*

  } **ONLY THESE BUGS!!**
- Uses DHI test day milk sample
- Convenient and easy
- ~ $23/sample

Ontario Dairy Industry Working Group

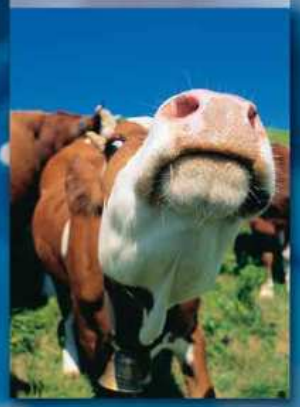
CANWEST DHI

Commercial Application!

PathoProof™ Mastitis PCR Assay

Now sold as Thermo Scientific

Revolutionary fast and reliable identification of mastitis causing bacteria from bovine milk



Thermo SCIENTIFIC

FINNZYMES
Part of Thermo Fisher Scientific

PathoProof Mastitis Complete-12 Kit identifies

1. *Staphylococcus aureus*
2. *Staphylococcus sp.* (including all major coagulase negative staphylococci)
3. *Streptococcus agalactiae*
4. *Streptococcus dysgalactiae*
5. *Streptococcus uberis*
6. *Esch[illegible]ia c[illegible]*
7. *Entero[illegible]*. (incl[illegible]*ecalis* [illegible]*cium*)
8. *Klebsie[illegible]* including [illegible]*toca* and [illegible]*umoniae*)
9. *Serrati[illegible]cens*
10. *Cory[illegible]acte[illegible]s bo[illegible]*
11. *Arc[illegible]bacter [illegible]* and *P[illegible]us Peptostreptococcus) indolicus*
12. Staphylococcal β-lactamase gene (penicillin resistance gene)

Original Laboratory Application!

XXX

PathoProof Mastitis Major-3 Kit identifies

1. *Mycoplasma bovis*
2. *Staphylococcus aureus*
3. *Streptococcus agalactiae*

MASTITIS 3
CONTAGIOUS MASTITIS ID

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Mastitis 3 PCR Assay Questions and Answers

Mastitis 3 PCR Assay
Applied to DHI Preserved, Composite, Metered Samples
Frequently Asked Questions and Answers

Dr. Ann Godkin, Veterinarian, Disease Prevention-Dairy & Beef Cattle,
Ontario Ministry of Agriculture, Food and Rural Affairs
Dr. David Kelton, Professor of Epidemiology and Graduate Coordinator
Department of Population Medicine, University of Guelph

1 - Why did my milk culture results and PCR results differ?

Research from five Ontario dairy farms with a history of endemic *Staphylococcus aureus* (*SA*) mastitis has shown that PCR results from DHI samples and bacteriological culture results from hand-stripped, composite samples agreed in most cases for the major contagious pathogens, *Staphylococcus aureus, Streptococcus agalactiae* and *Mycoplasma bovis*. Where they disagreed the differences were usually readily explained.

A PCR result from a test on a DHI milk sample can differ from a routine bacteriological culture result for several reasons. They differ because:

- These PCR and culture are two different kinds of tests and test for different aspects of bacteria.
- The tests are done on different samples, and
- The two tests have a different spectrum of possible results.

Table 1 gives important and specific details about how the samples and tests differ.

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The CanWest DHI Experience

Feb 2009 to May 1, 2011:

- **11,246** Mast 3 PCR tests in Ontario
  - **2,897** *Staph aureus* Positive – 25.7%
  - **83** *Strep ag* Positive
  - Only **17** *Mycoplasma bovis* Positive

MASTITIS 3 CONTAGIOUS MASTITIS ID

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Monitoring of Cow SCC – Dairy Comp

Dairy Comp®

Herd Management Software

Top 10….15 List

DC305 Udder Health Commands

David Kelton, Ynte Schukken &
Melanie Quist-Moyer

POPULAR SCC COMMANDS

GENERAL ASSESSMENT

- **EVENTS\5 or EVENTS\6**
  Table of herd events over time (Events\5 = month, Events\6 = DIM).
- **ECON\JD365**
  To graph events over time.
- **PLOT MILK BY LCTGP\R (or substitute LS or SCC for MILK)**
  Plot of milk production for each test day over the last year.

SOMATIC CELL COUNT ANALYSIS

- **GUIDE**
  Set list of options to examine cow SCC. Look at 'Fresh Cows', 'Somatic Cell Counts' and 'Mastitis' tabs.
- **ECON\SP**
  Bulk tank SCC contribution analysis with the ability to select the test date.
- **GRAPH LS BY PLS LCTGP FOR LACT>0\B**
  Scatter graph of linear score versus previous linear score distributed by lactation group.
- **SUM LS=4.5 PLS=4.5 FOR LACT>0 by LACTGP\YTRZ**
  Provides 2 x 2 tables of linear score by previous linear score for each lactation group followed by overall table. LS/PLS can be substituted for SCC/PSCC with desired cut-off (e.g. SCC=200).
- **EGRAPH MAST FRESH FOR DIM<31\FN1**
  Bar graph indicating number of monthly fresh cows and how many had mastitis in the first 30 days of lactation.
- **GRAPH LS1 BY DIMTD LCTGP FOR LACT>0 DIMTD<366\TZBP4**
  Scatter graph of fresh linear score over DIM at test day.
- **GRAPH LS1 BY DRYLS LCTGP FOR LACT>0 DIMTD<366\TMBP4**
  Scatter graph of fresh linear score versus linear score at dry off.
- **PLOT LS=4.5 BY LS\YRZ**
  Provides a table of SCC infection dynamics for each test day in the last year. LS/PLS can be substituted for SCC/PSCC with desired cut-off (e.g. SCC=200).
- **NEWINF**
  List of new cows above SCC of 200,000 at last test day. Can customize SCC cut-off limits.

CLINICAL MASTITIS ANALYSIS

- **RPTINF**
  List of cows with repeat SCC above 200,000 at last test day. Can customize SCC cut-off limits.
- **MASTRPT FOR FDAT>-365\B**
  List of cows with 1+ cases of clinical mastitis within the last year.
- **PCT NMAST>0 BY LACT FOR FDAT>-365 LACT>0\B**
  Provides the clinical mastitis incidence (1+ cases of clinical mastitis in this lactation), for cows fresh in the last year.
- **SUM BY NMAST LCTGP FOR LACT>0 FDAT>-365\B**
  Provides table of number of mastitis events by lactation group for cows fresh in the last year.

ABBREVIATIONS

LCTGP: Lactation groups (1=lactation1, 2=lactation 2, 3=lactation >2)
LS: Linear score at recent test day
PLS: Previous test day linear score
SCC: Somatic cell count at recent test day
PSCC: Previous test day somatic cell count
DRYLS: Linear score at dry-off
LS1: Linear score at first test day in current lactation
DIMTD: Days in milk at recent test day
NMAST: Number of mastitis events
FDAT: Fresh date

PLOT LS=4.5 BY LS\YRZ Definitions

These four categories add up to 100%:
Chronic: cows above cutoff previous test and above cutoff at a given test
New Inf: cows below cutoff previous test and above cutoff at a given test
Cured: cows above cutoff previous test and below cutoff at a given test
Cleaned: cows below cutoff previous test and below cutoff at a given test

These two categories add up to 100%:
HiFresh: cows tested for first time this lactation and above cutoff at first test
LoFresh: cows tested for first time this lactation and below cutoff at first test

Cure Risk: percentage of total cures this test divided by chronic and new infections last test
New Risk: total new infected cows divided by the total of cows below cut-off previous test.

NOTE:
- Cut-ff points (LS and SCC) can be customized
- Culture results need to be entered into Dairy Comp manually
- How many days between mastitis cases indicate a new case? Event gap can be customized in ALTER>9. User-defined events>select 37 MAST and set 'Duplicate event gap'.

For more information, please contact CanWest DHI Dairy Comp Support at 1-800-549-4373.

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Why aren't they the same?

DHI Herd Average SCC vs. DFO Bulk Tank SCC

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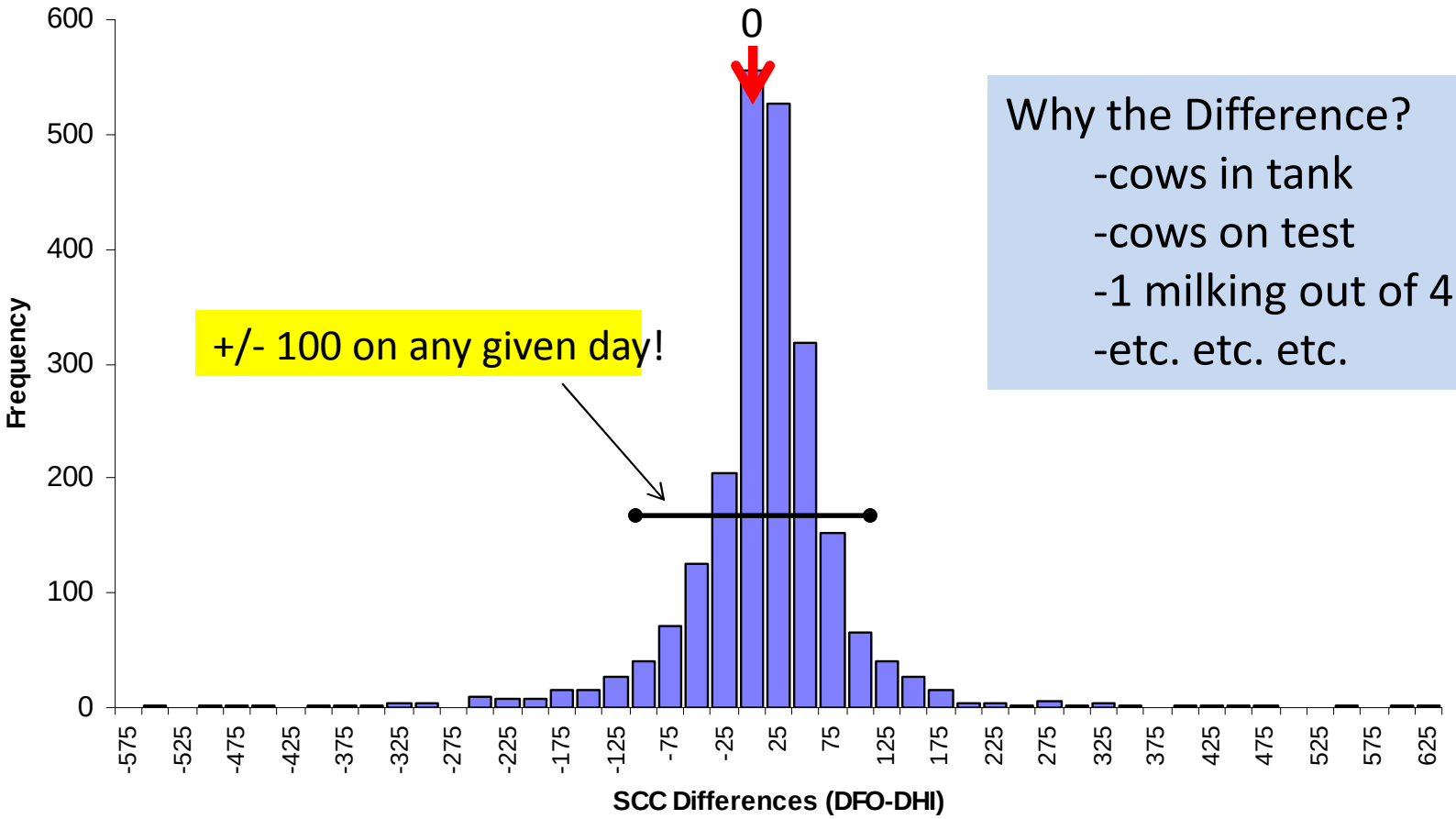
SCC Test Differences (DFO-DHI)
Same Test Day and DFO 1 Day Post DHI (Jan00-Mar00)



Why the Difference?

- -cows in tank
- -cows on test
- -1 milking out of 4
- -etc. etc. etc.

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Benchmarks

	Herd Summary SCC Benchmarks for Ontario Herds											
	Schukken			Ontario								
	BEST	OK	Not OK	Q1 - W	Q1 - S	Q2 - W	Q2 - S	Q3 - W	Q3 - S	Q4 - W	Q4 - S
New Infections	<5%	8%	>8%	5%	7%	8%	10%	11%	13%	14%	16%
Chronic Infections	<5%	10%	>10%	7%	9%	12%	14%	15%	17%	21%	24%
High Fresh	<10%	15%	>15%	13%	18%	20%	23%	27%	30%	35%	38%

Q = Quartile (Q1 are BEST 25% of herds based on Herd Average SCC in that month)

W = Winter (March, 2012) S = Summer (August, 2011)

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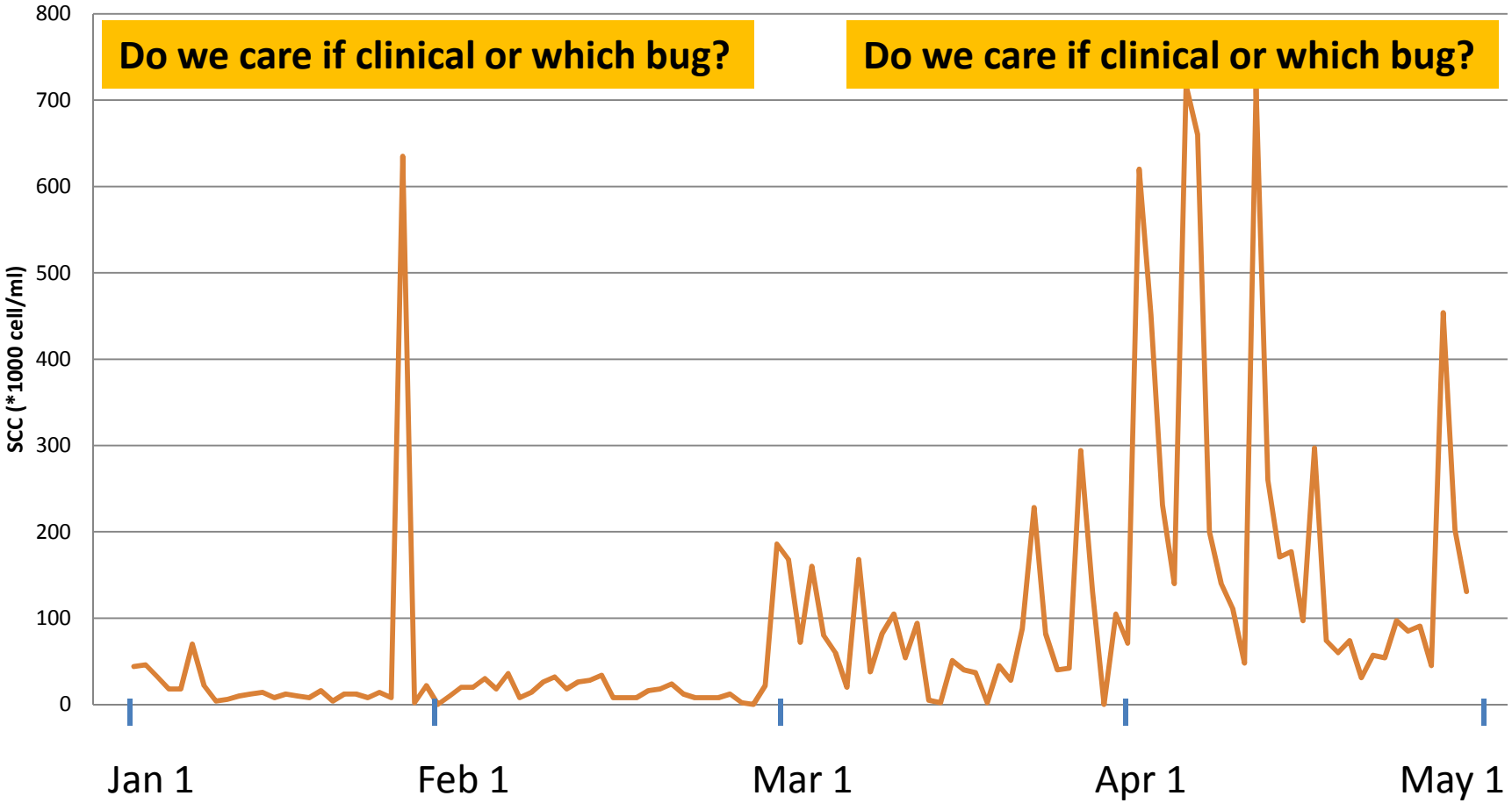
Beyond SCC – Clinical?…What bug(s)?

Daily SCC Data – 2011 – Cow # 81



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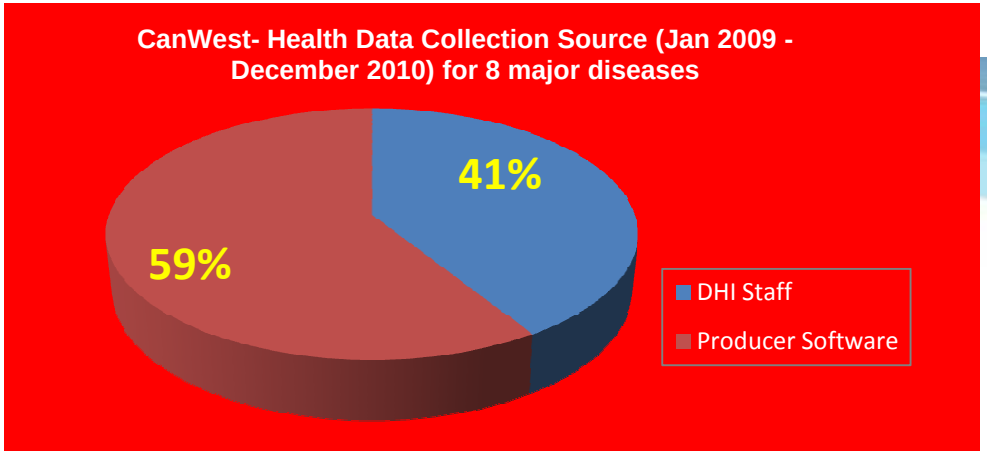
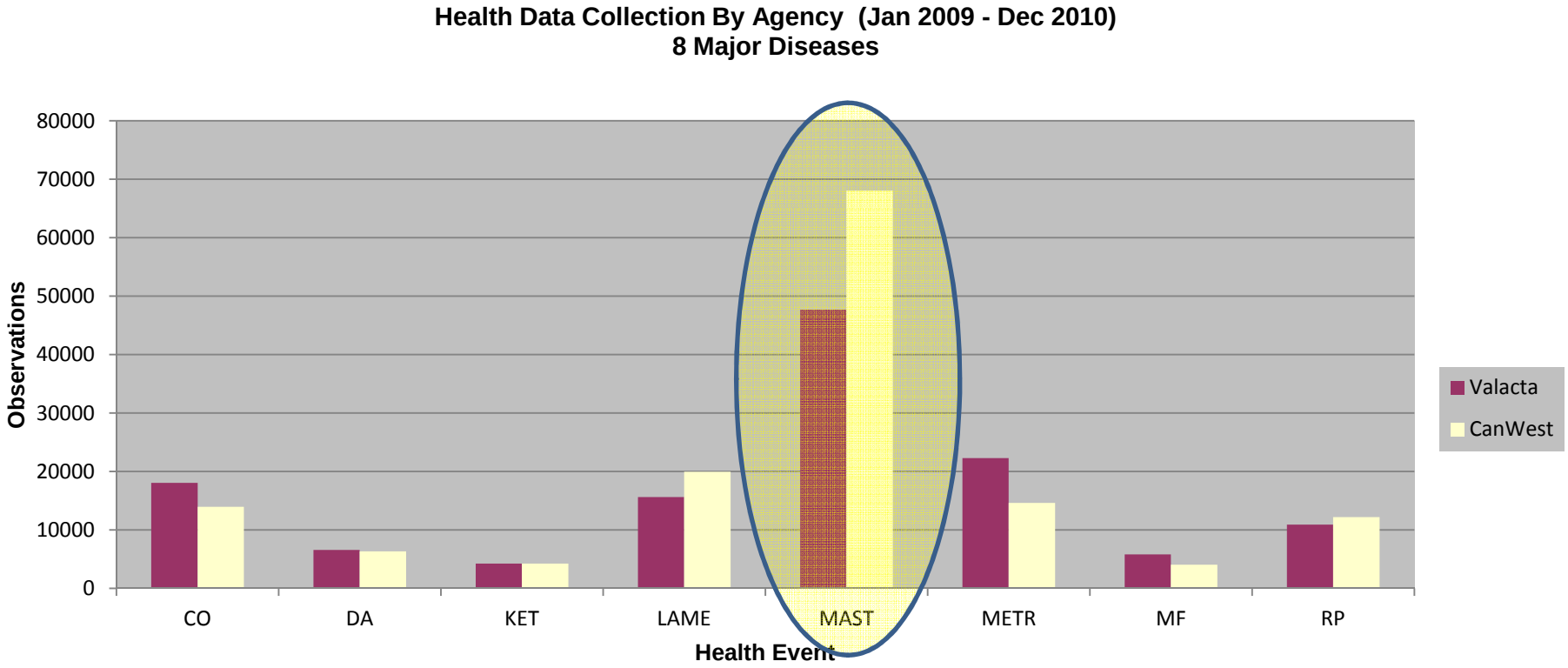


Who enters Mastitis Events?



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Milk Loss Due to Elevated SCC

See June Milk Producer….'Spilt Milk by SSG'

RESEARCH By Natalie Osborne

Accuracy counts

Researchers led a project to better calculate milk loss values using CanWest DHI data from Ontario herds

Current estimates for milk loss that result from high somatic cell counts are based on outdated numbers. University of Guelph researchers are analysing a new method for calculating these losses that could help you lower your herd's SCCs and improve udder health.

Dr. Karen Hand of Strategic Solutions Group and population medicine professor David Kelton led a project aimed at developing more accurate milk loss values using CanWest DHI data from 2,835 Ontario herds.

They found milk losses are significantly greater than original estimates calculated about 20 years ago, especially for cows that are high producers or in their first lactation. Now, researchers can use current, individual cow data from DHI to make in-herd comparisons.

"We can organize cows according to their production level relative to the herd, and compare a cow that has a high SCC with a healthy herdmate that's at a similar production level," says Kelton. "What we found is that as milk production goes up, the impact of SCC also increases, so a high-producing cow loses a larger proportion of her milk."

Milk loss for cows at all production levels has been underestimated because Ontario's overall output has increased through improved genetics and management since the original values were calculated.

The old formulas also found SCC-related milk loss in a cow's first lactation was not as severe—only about 50 per cent of losses seen in the second lactation and onward.

However, the new values showed the difference isn't nearly as large, and SCCs can have a major impact on production even in first lactation. Researchers say this probably reflects heifer management improvements over the years.

CanWest DHI plans to use this research to calculate the total milk loss and its corresponding dollar value for each cow, and include this information in their reports to producers.

"Now we can provide producers with the actual dollar loss from their high individual and herd SCC counts," says Richard Cantin, DHI's marketing and customer services manager. "This shows them the tangible value in taking steps to lower SCCs, even if they're technically below regulatory threshold limits."

Natalie Osborne is a student writer with the University of Guelph's office of research. Funding was provided by CanWest Dairy Herd Improvement and Dairy Farmers of Ontario.

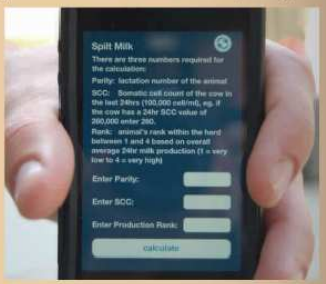
An app for that

New smartphone application helps you keep track of your herd's somatic cell counts

Tracking your herd's somatic cell counts just got a whole lot easier with a new smartphone application that lets you manage your herd's udder health from the palm of your hand.

Called the SpiltMilk by SSG application, the new tool lets you calculate SCC-related milk loss quickly and easily by entering cow values into your smartphone. Average herd milk loss also can be calculated by entering herd values. It was developed by Dr. Karen Hand of Strategic Solutions Group.

The application lets producers more closely monitor their herd's SCCs as they gear up for the approaching regulatory standard change to 400,000 cells per millilitre from the current 500,000 starting Aug. 1.



The SpiltMilk by SSG smartphone application, which lets you calculate SCC-related milk loss, is now available.

J. Dairy Sci. 95:1358–1362
http://dx.doi.org/10.3168/jds.2011-4927

Milk production and somatic cell counts: A cow-level analysis

K. J. Hand,*[1] A. Godkin,† and D. F. Kelton‡
*Strategic Solutions Group, Puslinch, ON, Canada, N0B 2J0
†Ontario Ministry of Agriculture, Food and Rural Affairs, Elora, ON, Canada, N0B 1S0
‡Population Medicine, University of Guelph, Guelph, ON, Canada, N1G 2W1

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On-farm Risk Assessment

Identifying Mastitis Risks on Ontario dairy farms

Farm Name: _____ Date: _____

Benchmarking performance:

Cow SCC classifications	This month										
	%	#	%	#	%	#	%	#	%	#	%

astitis pathogens and program emphasis (*circle one*)

Predominant Environment Mixed Contag./Environ

past ___ month(s) (*circle all that have been done*):

	Test fresh cows DHI Mast3	Test high SCC cows CMTs
als		

nts? 1 4 7 10

risk:

months, have you added to the herd? 1 4 7 10

ure cows have been added:

or herd SCCs prior to purchase? Yes 1 No 10

stitis on arrival? Yes 1 No 10

taken based on cow status? Yes 1 No 10

isks: Maximum Score is 50. Your score: ____

ing 1 4 7 10

5.0 Maternity Time Risks 1 4 7 10

5.1 Single or multiple cows in calving area

5.2 Manure build-up, risk for udder exposure

5.3 Duration of time in maternity pen and to first milking

Dry Cow and Maternity Risks: Maximum Score is 60. Your score: ____

May 21, 2012

6.0 Lactating Cow Risks 1 4 7 10

6.1 Cow Hygiene score

6.2 Bedding amount in stalls or pens

6.3 Stall dimensions

6.4 Ventilation/air quality

Lactating cow hygiene risks. Maximum score is 40. Your score: ____

7.0 Milking procedure risks

Pre-milking (*circle all that apply*) Predip Wipes only Wash Dry paper Strip Dry cloth

1 4 7 10

7.1 Milking gloves worn and cleaned

7.2 Stimulation time – adequate and consistent

7.3 Teat ends clean prior to unit on

7.4 Suspect cows identified and milked last

7.5 Units aligned and liner slips minimized

Post-milking

7.4 Teats and teat end quality

7.5 Teat dip coverage?

Milking procedure risks. Maximum score is 70. Your score: ____

8.0 Mastitis therapy risks

Number of cows treated _____ in _____ month (s)

1 4 7 10

8.1 Number of cows treated

8.2 Suitable written treatment protocols followed

8.3 Treatments recorded

Therapy risks. Maximum score is 30. Your score: ____

9.0 Milking Equipment 1 4 7 10

9.1 Equipment – functional and clean

1 4 7 10

9.2 Equipment service

Liner change interval:

Wash analysis Date

Function test Date:

Equipment risks. Maximum score is 20. Your score: ____

TOTAL Risk SCORE: ____ **/270**

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Iodine Levels in Milk

FAQ: Is iodine a bad thing?

Three year DFC project

- Health Canada upper limit is 500 PPM
- Year 1 sampling completed late Jan. 2011
- Results provided early Jan. 2012
- Objective is to have all tanks below 500 micrograms/litre

	Percentiles						
	10%	25%	50%	75%	90%	95%	99%
Canada	102	148	215	313	441	**548**	**960**
Ontario	148	206	285	398	**554**	**725**	**1327**

Most commonly implicated factors for elevated iodine:

1. Pre- and post-milking teat dip use
2. Ration components / supplements

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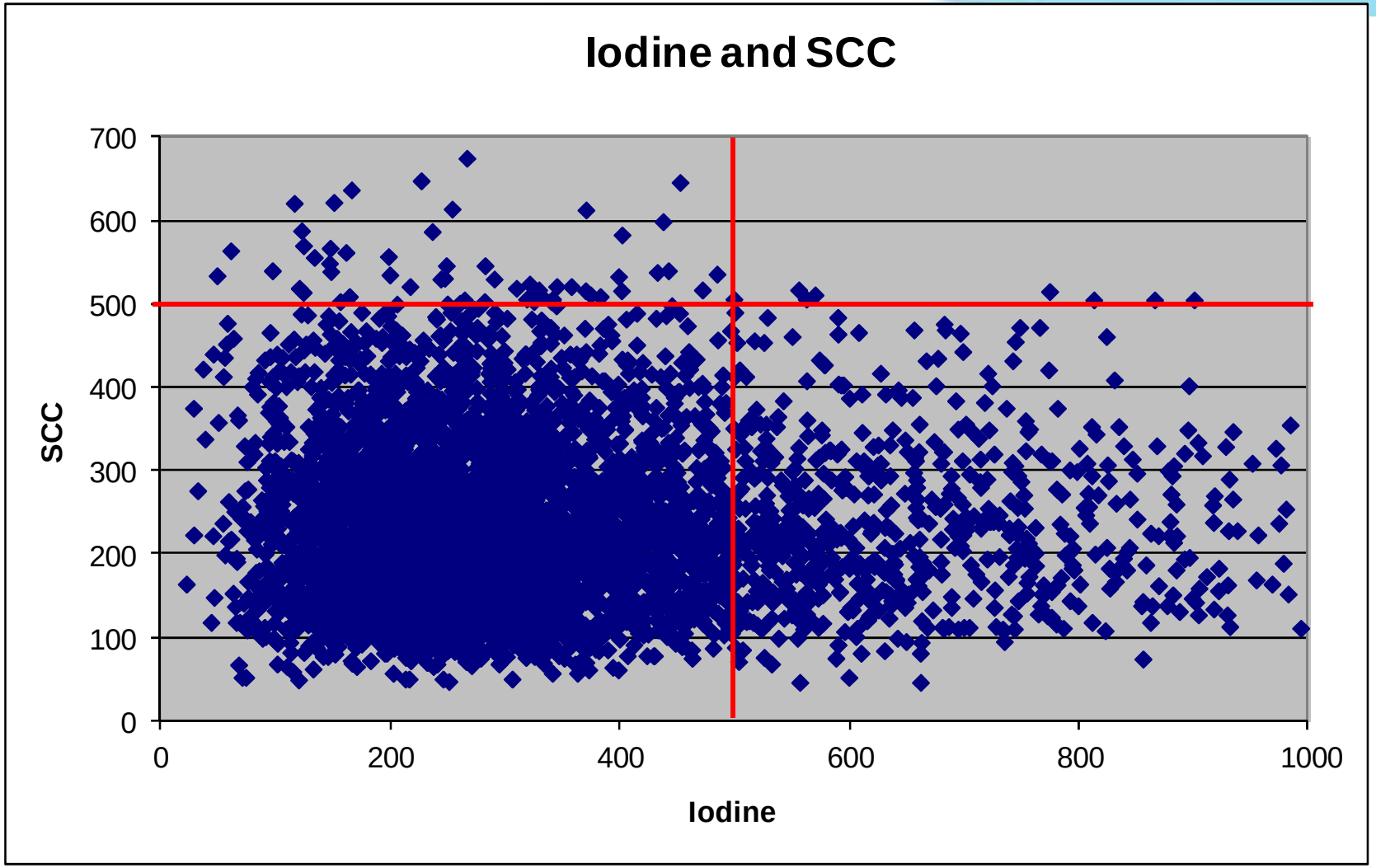
Iodine Test Results - 2011

Iodine Test Results - Initial Sampling - Ontario 2011

	Total # of Samples	Normal		% of Samples Elevated		High	
All Producers	4369	2955	67.6%	861	**19.7%**	553	**12.7%**
Milking System							
Pipeline	2894	1992	68.8%	565	**19.5%**	337	**11.6%**
Parlour	1262	834	66.1%	248	**19.7%**	180	**14.3%**
Buckets & Other	133	86	64.7%	25	**18.8%**	22	**16.5%**
Robots	80	43	53.8%	23	**28.8%**	14	**17.5%**
Niche Market							
DHA	52	33	63.5%	15	**28.8%**	4	**7.7%**

SCC versus Iodine



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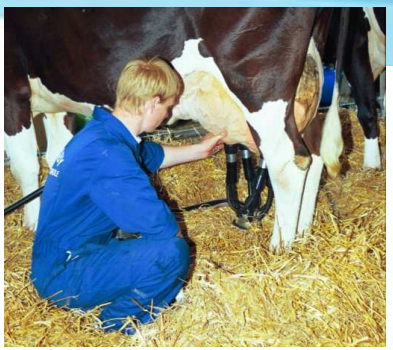
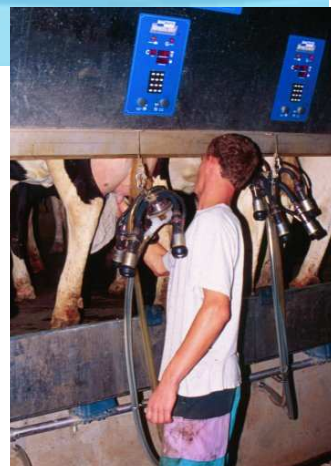
Why Elevated Iodine?





Herds Visited & Data Collected:

- ✓ **Milking** practices
- ✓ General **herd** characteristics (ie: herd size, barn type…..)
- ✓ **Feeding** practices (feed components & amounts fed)
- ✓ Iodine containing **products**
- ✓ **Volume** of iodine pre and post dips used at one milking
- ✓ Pre and post dip teat **coverage** on the teat
- ✓ Pre-dip **residue** on teats before milking machine applied
- ✓ Iodine measured in bulk tank milk and **feed samples** collected at visit

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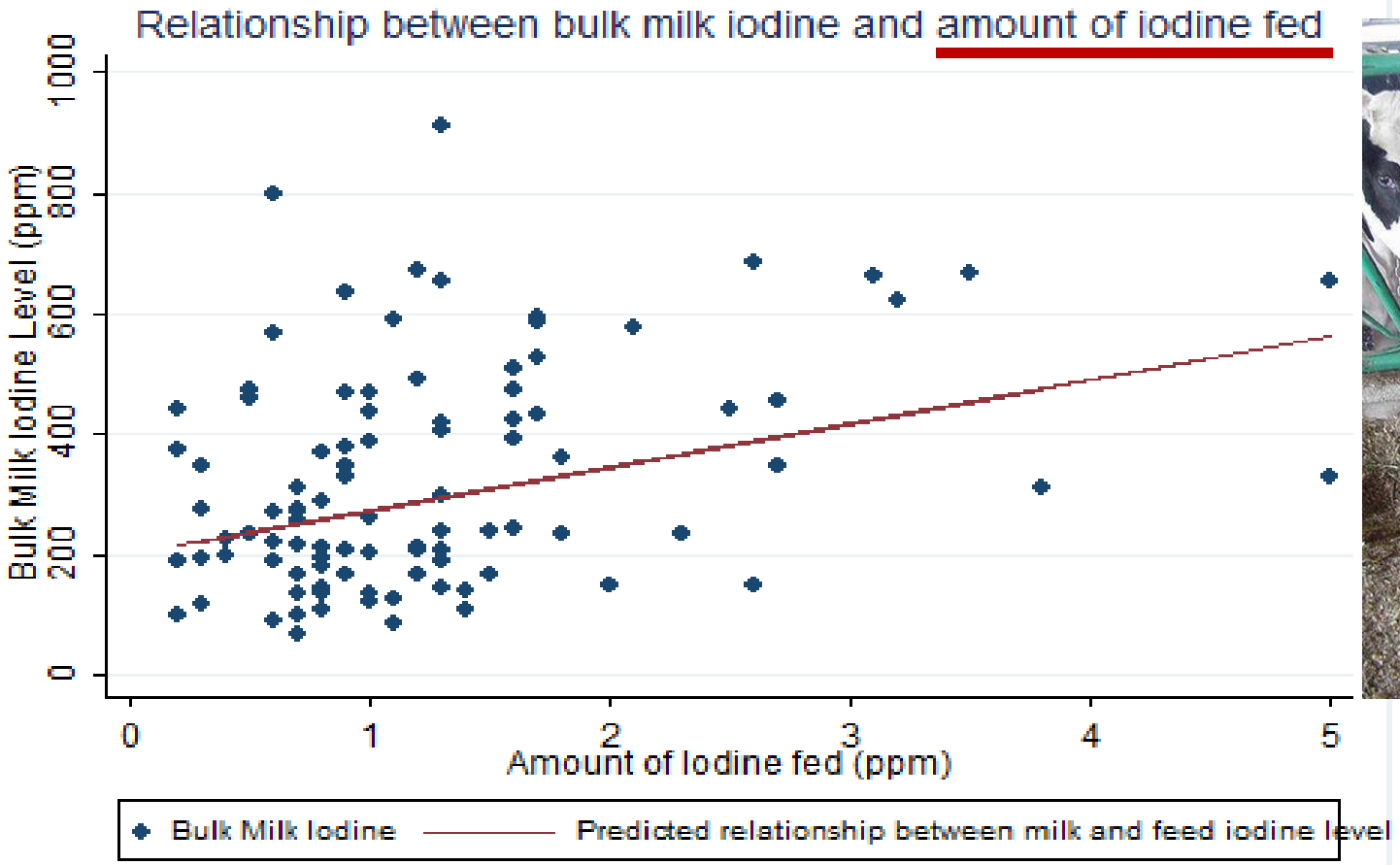
Why Elevated Iodine?



K. MacDonald, G. Keefe, D. Kelton, 2012

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Why Elevated Iodine?

Iodine teat dips ONLY increased BTM iodine when they were:

- Pre-dip NOT properly removed
- Applied to more than just the teat skin (onto the base of the udder)

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Things to think about as we Count Down……

- BT SCC has flat-lined since 1995….so time for action!
- Change from 500 to 400 SCC penalty level could result in

  up to a 4x increase in # of penalties – if NOTHING is done!
- Talk to producers and find out who is at risk – ask!
- Lots of great tools available…..try the Risk Assessment!
- Be proactive…..be part of the TEAM…..be the solution!

START NOW - NOT AN EASY FIX!!!

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Acknowledgements and Questions