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Brief Biography



- 1999 – 2001: Agricultural apprenticeship
- 2001 – 2007: DVM, Ludwig-Maximilians-Universität, Munich, Germany
- 2007 – 2008: Dissertation, Clinic for Ruminants, LMU, Munich, Germany
- 2008 – 2013: Clinical Instructor, Clinic for Ruminants, LMU, Munich, Germany
- 2013 – 2015: Resident, Ambulatory and Production Medicine Clinic, Cornell University
- 2015 – 2017: Post-doc, QMPS, Cornell University
- 2017 – Extension Associate, QMPS, Cornell University

The biography section is titled "Brief Biography" in a large, bold, black font. To the left of the text is a portrait of Matthias Wieland, a man with short brown hair and glasses, wearing a dark suit and a patterned tie. To the right of the portrait is a list of his professional experiences, each preceded by a bullet point. At the bottom of the biography section, there is a red horizontal bar. Below this bar, there are three logos: "Quality Milk Production Services" on the left, the website "www.pro dairy.cals.cornell.edu" in the center, and the "PRO DAIRY Education & Applied Research" logo on the right.

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Take Home Message

1. Be able to explain what somatic cells are, how they are measured, and why they are important.
2. Be able to extract key performance indicators from DC305 and explain how they relate to udder health of specific groups in a herd.
3. Be able to take advantage of test day data to manage the bulk tank SCC.



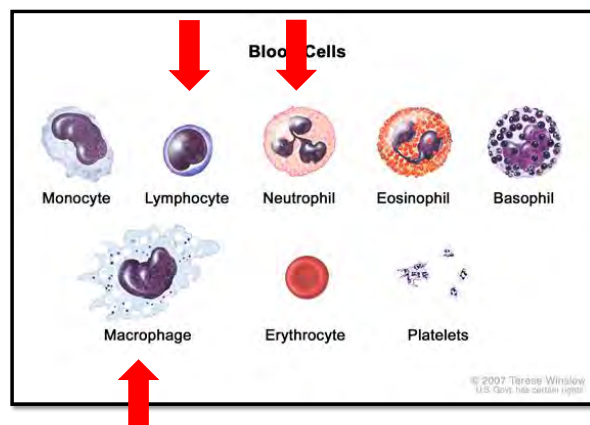
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What are Somatic Cells in Milk?

- White blood cells/Leukocytes
 - Polymorphonuclear neutrophils (PMN)
 - Macrophages
 - Lymphocytes
- Epithelial cells



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What are Somatic Cells in Milk?

Cell Population (%)	Mean	Standard Deviation	Minimum	Maximum
PMN	58.68	16.19	13	92
Macrophages	35.45	14.30	7	79
Lymphocytes	5.09	4.05	0	19

(Damm et al. 2017 – J. Dairy Sci. 100:4923-4940)

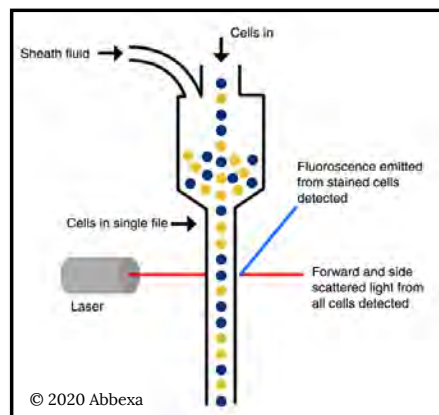


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How do we measure SCC in Milk?



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Why do we care about SCC in Milk?

- SCC \rightarrow Milk production (Hadrich et al. 2018 – J. Dairy Sci. 100:3588-3596)
- SCC \rightarrow Premiums (Ruegg 2011 - <https://milkquality.wisc.edu/>)
- SCC \rightarrow Milk casein and cheese yield (Barbano et al. 1991 – J. Dairy Sci. 74:369-388)
- SCC \rightarrow Bimodal milk letdown (Zecconi et al. 2018 – J. Dairy Res. 85:20-52)
- SCC \rightarrow Animal well-being (Peters et al. 2015 – Animal 9:2024-2028)



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Transfer from SCC to Linear Score (LS)

- **Linear Score = $\ln[(\text{SCC}/100,000)/\ln(2)] + 3$** (Ali and Shook. 1980 – J. Dairy Sci. 63:487-490)

SCC (cells/mL)	Linear Score
400,000	5
200,000	4
100,000	3
25,000	1
12,500	0
12,000	-0.05
1,000	-3.6



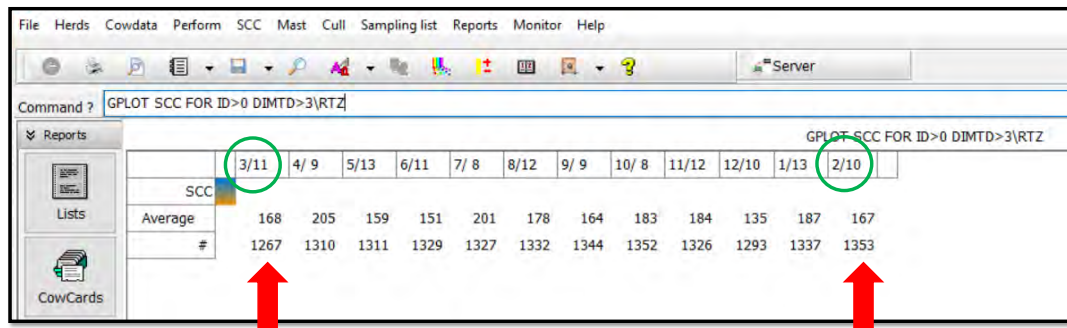
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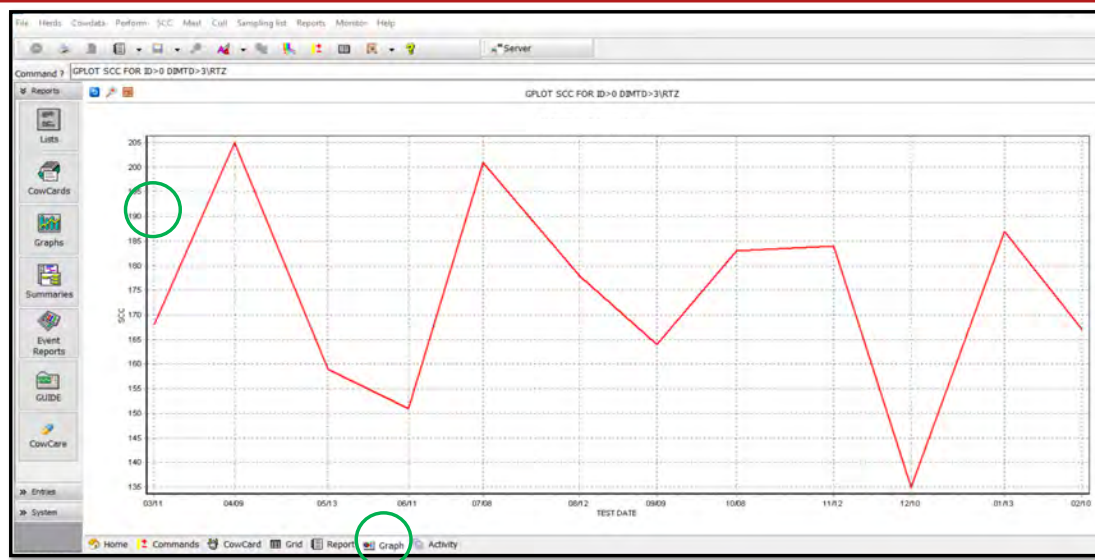
Mean Test Day SCC I

- COMMAND: GPLOT SCC FOR ID>0 DIMTD>3\RTZ



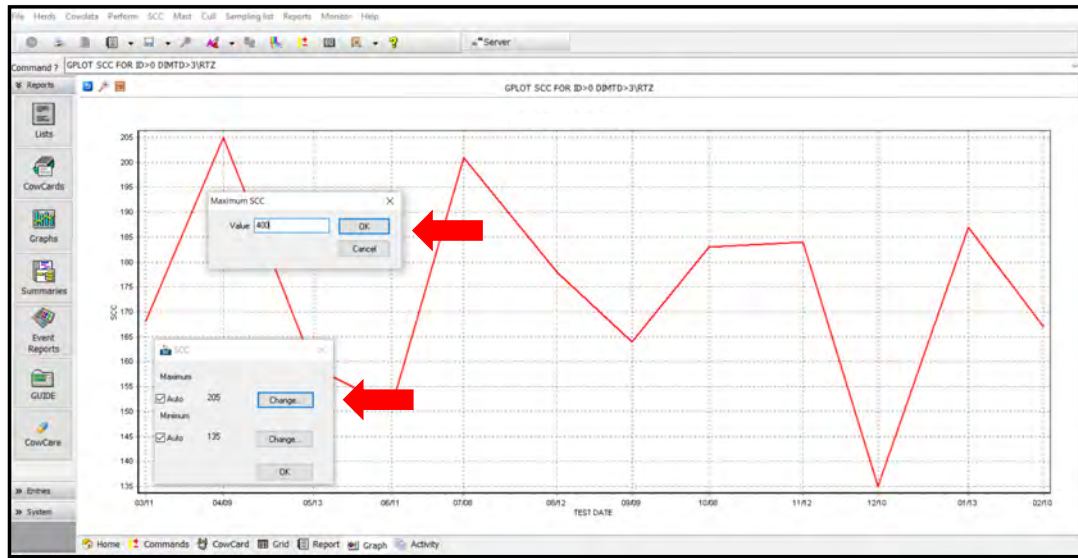
9

Mean Test Day SCC II



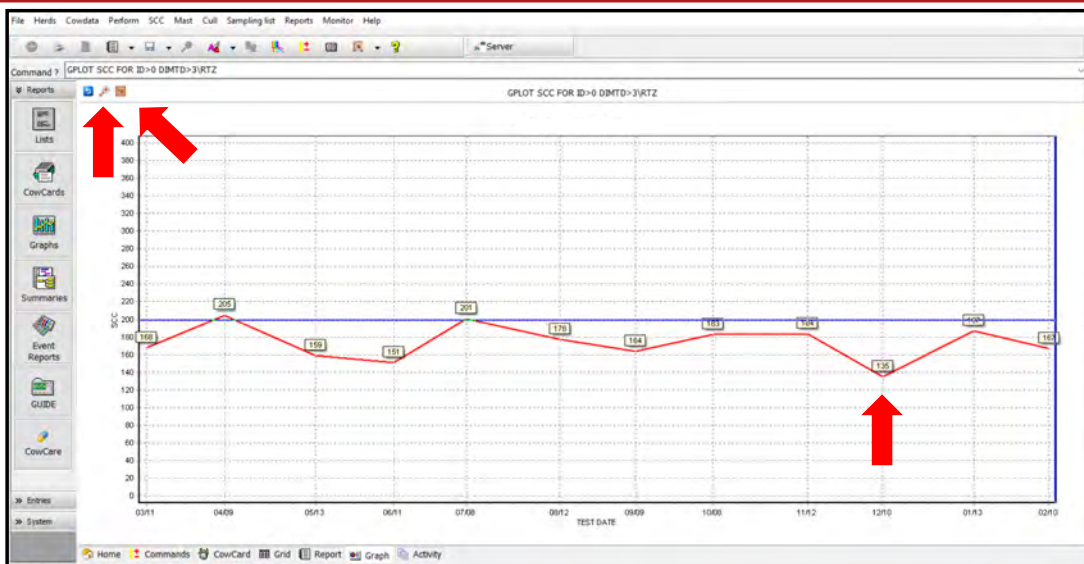
10

Mean Test Day SCC III



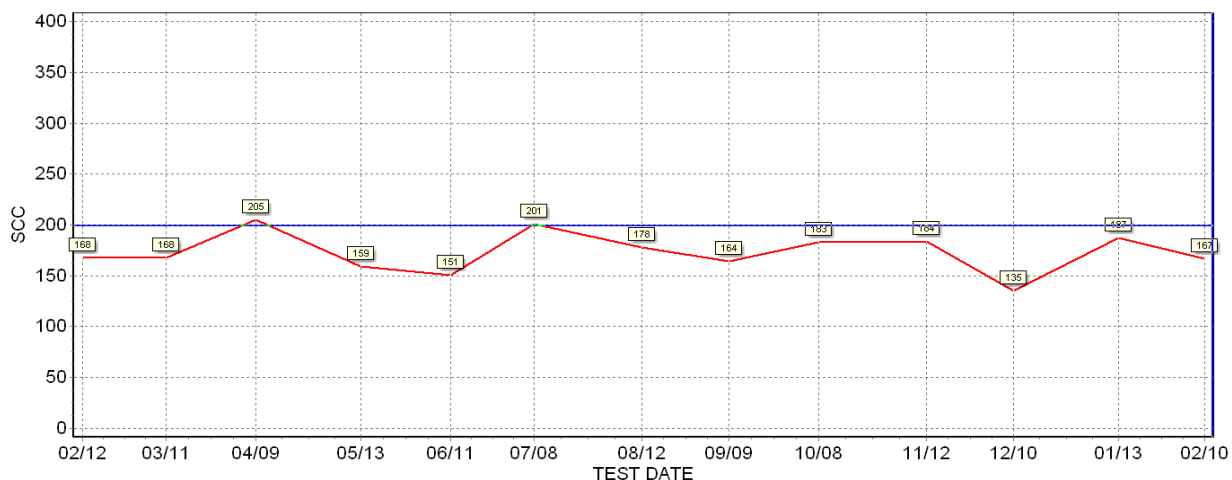
11

Mean Test Day SCC IV



12

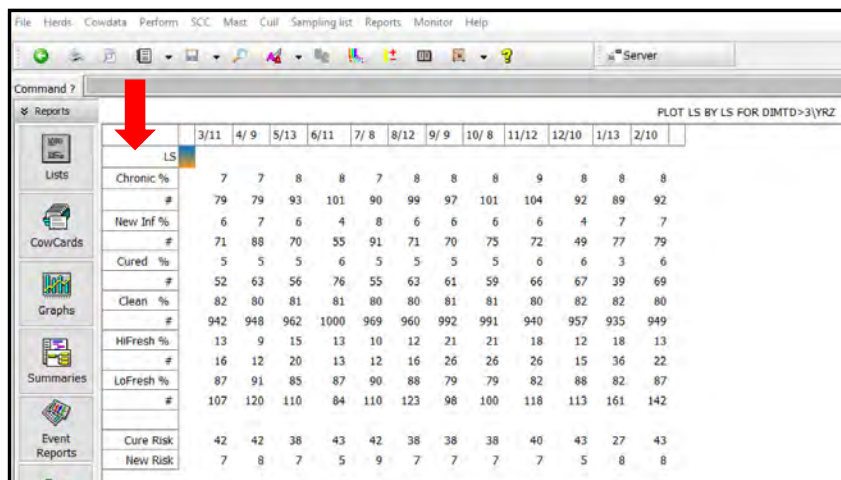
Mean Test Day SCC V



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Key Performance Indicators I

- COMMAND: PLOT LS=4 BY LS FOR DIMTD>3\YRZ



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Key Performance Indicators II

	3/11	4/9	5/13	6/11	7/8	8/12	9/9	10/8	11/12	12/10	1/13	2/10
Chronic %	7	7	8	8	7	8	8	8	9	8	8	8
New Inf %	79	79	93	101	90	99	97	101	104	92	89	92
Cured %	6	7	6	4	8	6	6	6	6	4	7	7
Clean %	71	88	70	55	91	71	70	75	72	49	77	79
HiFresh %	5	5	5	6	5	5	5	5	6	6	3	3
LoFresh %	52	63	56	76	55	63	61	59	66	67	39	69
Cure Risk	82	80	81	81	80	80	81	81	80	82	82	82
New Risk	942	948	962	1000	969	960	992	991	940	957	935	949
Cure Risk	13	9	15	13	10	12	21	21	18	12	18	22
New Risk	16	12	20	13	12	16	26	26	26	15	36	22
Cure Risk	87	91	85	87	90	88	79	79	82	88	82	87
New Risk	107	120	110	84	110	123	98	100	118	113	161	142
Cure Risk	42	42	38	43	42	38	38	38	40	43	27	43
New Risk	7	8	7	5	9	7	7	7	7	5	8	8

1. Chronic % = $92 / (92 + 79 + 69 + 949) = 8\%$

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Key Performance Indicators III

	3/11	4/9	5/13	6/11	7/8	8/12	9/9	10/8	11/12	12/10	1/13	2/10
Chronic %	7	7	8	8	7	8	8	8	9	8	8	8
New Inf %	79	79	93	101	90	99	97	101	104	92	89	92
Cured %	6	7	6	4	8	6	6	6	6	4	7	7
Clean %	71	88	70	55	91	71	70	75	72	49	77	79
HiFresh %	5	5	5	6	5	5	5	5	6	6	3	3
LoFresh %	52	63	56	76	55	63	61	59	66	67	39	69
Cure Risk	82	80	81	81	80	80	81	81	80	82	82	82
New Risk	942	948	962	1000	969	960	992	991	940	957	935	949
Cure Risk	13	9	15	13	10	12	21	21	18	12	18	22
New Risk	16	12	20	13	12	16	26	26	26	15	36	22
Cure Risk	87	91	85	87	90	88	79	79	82	88	82	87
New Risk	107	120	110	84	110	123	98	100	118	113	161	142
Cure Risk	42	42	38	43	42	38	38	38	40	43	27	43
New Risk	7	8	7	5	9	7	7	7	7	5	8	8

1. Chronic % = $92 / (92 + 79 + 69 + 949) = 8\%$

2. New Inf % = $79 / (92 + 79 + 69 + 949) = 7\%$

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Key Performance Indicators IV

	3/11	4/9	5/13	6/11	7/8	8/12	9/9	10/8	11/12	12/10	1/13	2/10
Chronic %	7	7	8	8	7	8	8	8	9	8	8	8
New Inf %	79	79	93	101	90	99	97	101	104	92	89	92
Cured %	71	88	70	55	91	71	70	75	72	49	77	79
Clean %	52	63	56	76	55	63	61	59	66	67	39	69
HiFresh %	942	948	962	1000	969	960	992	991	940	957	935	949
LoFresh %	13	9	15	13	10	12	21	21	18	12	18	22
Cure Risk	42	42	38	43	42	38	38	38	40	43	27	43
New Risk	7	8	7	5	9	7	7	7	7	5	8	8

1. Chronic % = $92 / (92 + 79 + 69 + 949) = 8\%$
2. New Inf % = $79 / (92 + 79 + 69 + 949) = 7\%$
3. Cured % = $69 / (92 + 79 + 69 + 949) = 6\%$

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Key Performance Indicators V

	3/11	4/9	5/13	6/11	7/8	8/12	9/9	10/8	11/12	12/10	1/13	2/10
Chronic %	7	7	8	8	7	8	8	8	9	8	8	8
New Inf %	79	79	93	101	90	99	97	101	104	92	89	92
Cured %	71	88	70	55	91	71	70	75	72	49	77	79
Clean %	52	63	56	76	55	63	61	59	66	67	39	69
HiFresh %	942	948	962	1000	969	960	992	991	940	957	935	949
LoFresh %	13	9	15	13	10	12	21	21	18	12	18	22
Cure Risk	42	42	38	43	42	38	38	38	40	43	27	43
New Risk	7	8	7	5	9	7	7	7	7	5	8	8

1. Chronic % = $92 / (92 + 79 + 69 + 949) = 8\%$
2. New Inf % = $79 / (92 + 79 + 69 + 949) = 7\%$
3. Cured % = $69 / (92 + 79 + 69 + 949) = 6\%$
4. Clean % = $949 / (92 + 79 + 69 + 949) = 80\%$

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Key Performance Indicators VI

	3/11	4/9	5/13	6/11	7/8	8/12	9/9	10/8	11/12	12/10	1/13	2/10
Chronic %	7	7	8	8	7	8	8	8	9	8	8	8
New Inf %	79	79	93	101	90	99	97	101	104	92	89	92
Cured %	71	88	70	55	91	71	70	75	72	49	77	79
Clean %	5	5	5	6	5	5	5	5	6	6	3	6
HiFresh %	13	9	15	13	10	12	21	21	18	12	18	22
LoFresh %	87	91	85	87	90	88	79	79	82	88	82	142
Cure Risk	42	42	38	43	42	38	38	38	40	43	27	43
New Risk	7	8	7	5	9	7	7	7	7	5	8	8

1. Chronic % = $92 / (92 + 79 + 69 + 949) = 8\%$
2. New Inf % = $79 / (92 + 79 + 69 + 949) = 7\%$
3. Cured % = $69 / (92 + 79 + 69 + 949) = 6\%$
4. Clean % = $949 / (92 + 79 + 69 + 949) = 80\%$
5. HiFresh % = $22 / (22 + 142) = 13\%$

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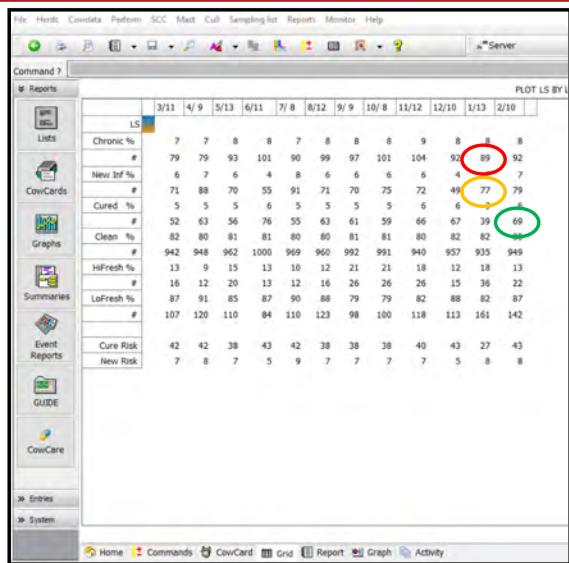
Key Performance Indicators VII

	3/11	4/9	5/13	6/11	7/8	8/12	9/9	10/8	11/12	12/10	1/13	2/10
Chronic %	7	7	8	8	7	8	8	8	9	8	8	8
New Inf %	79	79	93	101	90	99	97	101	104	92	89	92
Cured %	71	88	70	55	91	71	70	75	72	49	77	79
Clean %	5	5	5	6	5	5	5	5	6	6	3	6
HiFresh %	13	9	15	13	10	12	21	21	18	12	18	22
LoFresh %	87	91	85	87	90	88	79	79	82	88	82	142
Cure Risk	42	42	38	43	42	38	38	38	40	43	27	43
New Risk	7	8	7	5	9	7	7	7	7	5	8	8

1. Chronic % = $92 / (92 + 79 + 69 + 949) = 8\%$
2. New Inf % = $79 / (92 + 79 + 69 + 949) = 7\%$
3. Cured % = $69 / (92 + 79 + 69 + 949) = 6\%$
4. Clean % = $949 / (92 + 79 + 69 + 949) = 80\%$
5. HiFresh % = $22 / (22 + 142) = 13\%$
6. LoFresh % = $142 / (22 + 142) = 87\%$

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Key Performance Indicators VIII

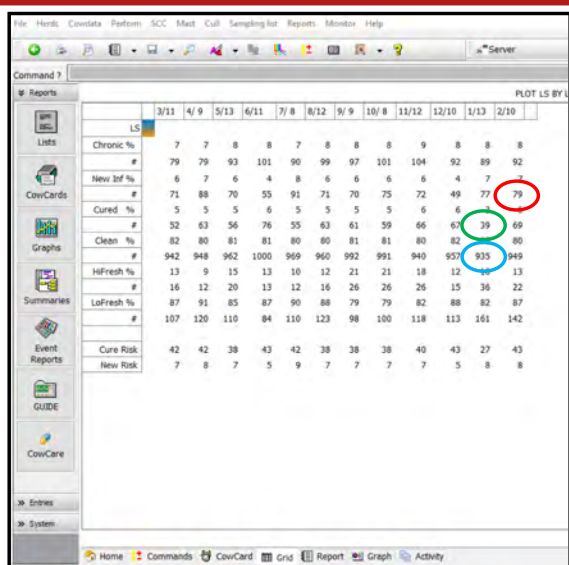


	3/11	4/9	5/13	6/11	7/8	8/12	9/9	10/8	11/12	12/10	1/13	2/10
Chronic %	7	7	8	8	7	8	8	8	9	8	8	8
New Inf %	79	79	93	101	90	99	97	101	104	92	89	92
Cured %	71	88	70	55	91	71	70	75	72	49	77	79
Clean %	5	5	5	6	5	5	5	5	5	6	6	6
HiFresh %	52	63	56	76	55	63	61	59	66	67	39	69
LoFresh %	82	80	81	81	80	80	81	81	80	82	82	80
Cure Risk	942	948	962	1000	969	960	992	991	940	957	935	949
New Risk	13	9	15	13	10	12	21	21	18	12	18	13

1. Chronic % = $92 / (92 + 79 + 69 + 949) = 8\%$
2. New Inf % = $79 / (92 + 79 + 69 + 949) = 7\%$
3. Cured % = $69 / (92 + 79 + 69 + 949) = 6\%$
4. Clean % = $949 / (92 + 79 + 69 + 949) = 80\%$
5. HiFresh % = $22 / (22 + 142) = 13\%$
6. LoFresh % = $142 / (22 + 142) = 87\%$
7. Cure Risk = $69 / (77 + 89) = 42\%$

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Key Performance Indicators IX



	3/11	4/9	5/13	6/11	7/8	8/12	9/9	10/8	11/12	12/10	1/13	2/10
Chronic %	7	7	8	8	7	8	8	8	9	8	8	8
New Inf %	79	79	93	101	90	99	97	101	104	92	89	92
Cured %	71	88	70	55	91	71	70	75	72	49	77	79
Clean %	5	5	5	6	5	5	5	5	5	6	6	6
HiFresh %	52	63	56	76	55	63	61	59	66	67	39	69
LoFresh %	82	80	81	81	80	80	81	81	80	82	82	80
Cure Risk	942	948	962	1000	969	960	992	991	940	957	935	949
New Risk	13	9	15	13	10	12	21	21	18	12	18	13

1. Chronic % = $92 / (92 + 79 + 69 + 949) = 8\%$
2. New Inf % = $79 / (92 + 79 + 69 + 949) = 7\%$
3. Cured % = $69 / (92 + 79 + 69 + 949) = 6\%$
4. Clean % = $949 / (92 + 79 + 69 + 949) = 80\%$
5. HiFresh % = $22 / (22 + 142) = 13\%$
6. LoFresh % = $142 / (22 + 142) = 87\%$
7. Cure Risk = $69 / (77 + 89) = 42\%$
8. New Risk = $79 / (39 + 935) = 8\%$

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Key Performance Indicators IX

	3/11	4/9	5/13	6/11	7/8	8/12	9/9	10/8	11/12	12/10	1/13	2/10
Chronic %	7	7	8	8	7	8	8	8	9	8	8	8
New Inf %	79	79	93	101	90	99	97	101	104	92	89	92
Cured %	6	7	6	4	8	6	6	6	6	4	7	7
Clean %	71	88	70	55	91	71	70	75	72	49	77	79
HiFresh %	5	5	5	6	5	5	5	5	6	6	3	6
LoFresh %	52	63	56	76	55	63	61	59	66	67	39	69
Cure Risk	82	80	81	81	80	80	81	81	80	82	82	80
New Risk	942	948	962	1000	969	960	992	991	940	957	935	949

1. Chronic % = $92 / (92 + 79 + 69 + 949) = 8\%$
2. New Inf % = $79 / (92 + 79 + 69 + 949) = 7\%$
3. Cured % = $69 / (92 + 79 + 69 + 949) = 6\%$
4. Clean % = $949 / (92 + 79 + 69 + 949) = 80\%$
5. HiFresh % = $22 / (22 + 142) = 13\%$
6. LoFresh % = $142 / (22 + 142) = 87\%$
7. Cure Risk = $69 / (77 + 89) = 42\%$
8. New Risk = $79 / (39 + 935) = 8\%$

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New Inf % - New Risk

	March	April	May	June
Farm A				
Chronic #	50	50		
New Inf #	0	10		
Cured #	0	0		
Clean #	50	40		
Farm B				
Chronic #	1	1		
New Inf #	0	10		
Cured #	0	0		
Clean #	99	89		

1. Farm A
 1. New Inf % = $10 / 100 = 10\%$
 2. New Risk = $10 / 50 = 20\%$
2. Farm B
 1. New Inf % = $10 / 100 = 10\%$
 2. New Risk = $10 / 99 = 10\%$

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New Inf % - New Risk

	March	April	May	June
Farm A				
Chronic #	50	50	60	
New Inf #	0	10	10	
Cured #	0	0	0	
Clean #	50	40	30	
Farm B				
Chronic #	1	1	1	
New Inf #	0	10	10	
Cured #	0	0	10	
Clean #	99	89	79	

1. Farm A
 1. New Inf % = $10/100 = 10\%$
 2. New Risk = $10/40 = 25\%$
2. Farm B
 1. New Inf % = $10/100 = 10\%$
 2. New Risk = $10/89 = 11\%$

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New Inf % - New Risk

	March	April	May	June
Farm A				
Chronic #	50	50	60	70
New Inf #	0	10	10	10
Cured #	0	0	0	0
Clean #	50	40	30	20
Farm B				
Chronic #	1	1	1	1
New Inf #	0	10	10	10
Cured #	0	0	10	10
Clean #	99	89	79	79

1. Farm A
 1. New Inf % = $10/100 = 10\%$
 2. New Risk = $10/30 = 33\%$
2. Farm B
 1. New Inf % = $10/100 = 10\%$
 2. New Risk = $10/89 = 11\%$

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New Inf % - New Risk

	March	April	May	June
Farm A				
Chronic #	50	50	60	70
New Inf #	0	10	10	10
Cured #	0	0	0	0
Clean #	50	40	30	20
Farm B				
Chronic #	1	1	1	1
New Inf #	0	10	10	10
Cured #	0	0	10	10
Clean #	99	89	79	79

	March	April	May	June
Farm A				
New Inf %	0	10	10	10
New Risk	-	20	25	33
Farm B				
New Inf %	0	10	10	10
New Risk	0	10	11	11

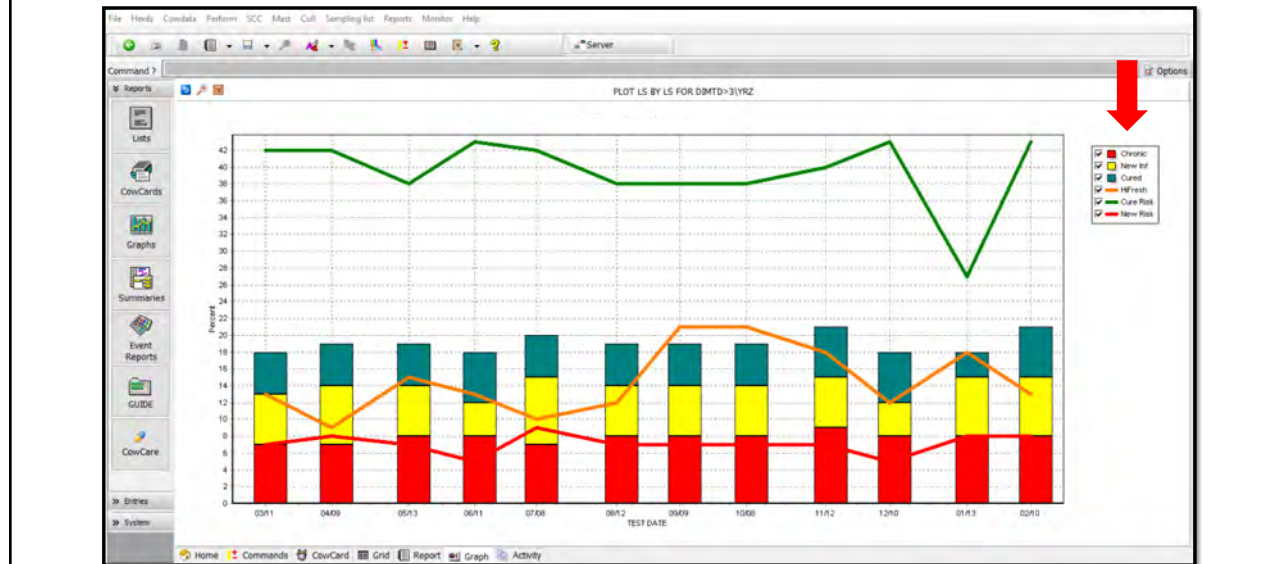
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Key Performance Indicators X

The screenshot shows the QMPS software interface. The 'Reports' menu is highlighted with a green circle. The 'Options' dialog box is open, showing the 'LS' (Lactation Summary) option selected. A red arrow points to the 'LACT > 2' checkbox, which is checked. The 'Go' button is highlighted with a blue circle.

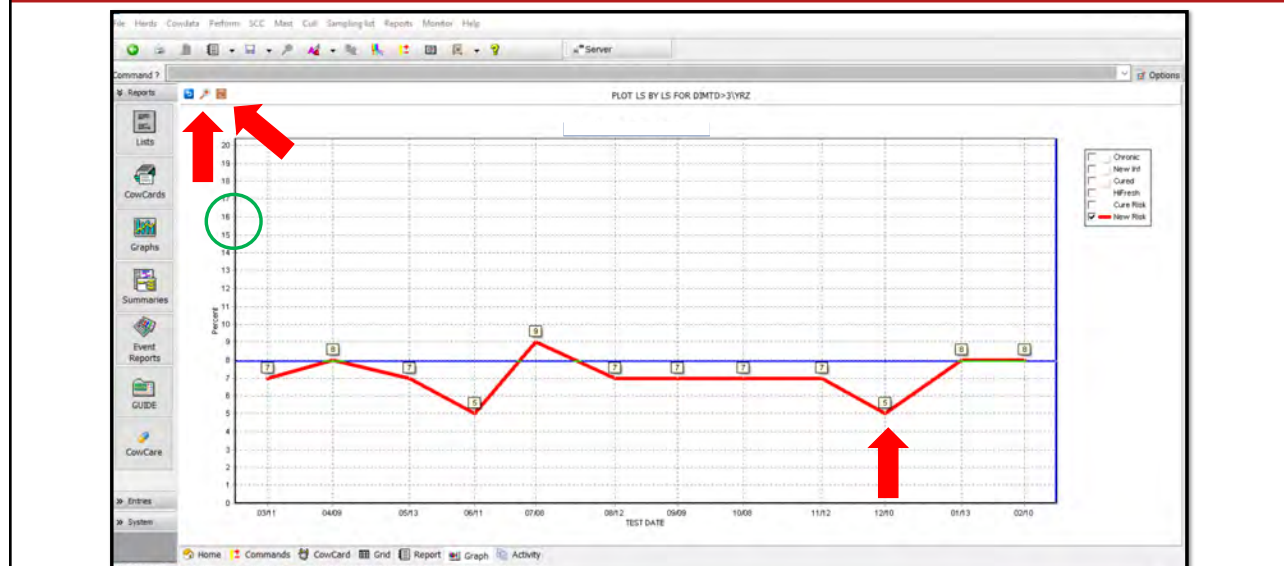
28

Key Performance Indicators XI



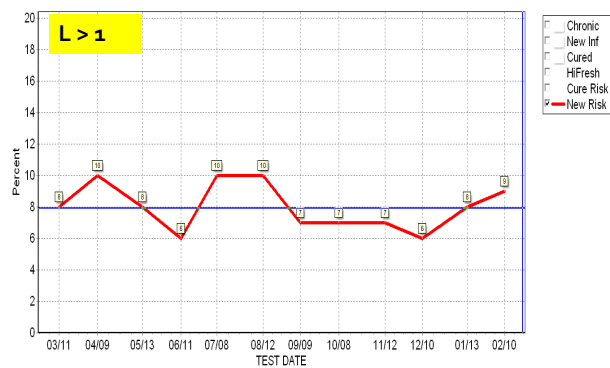
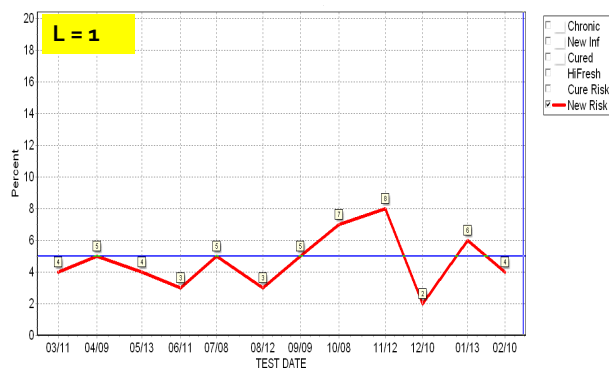
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KPI - New Infection Risk I



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KPI - New Infection Risk II

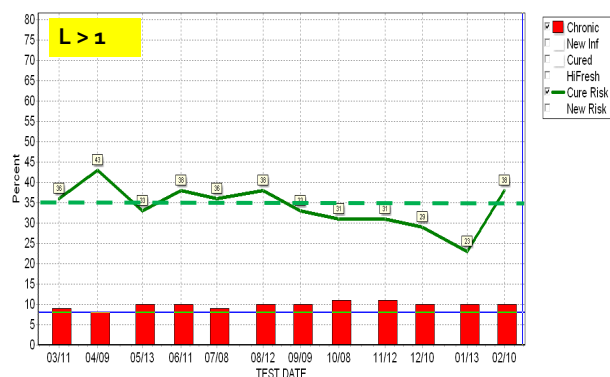
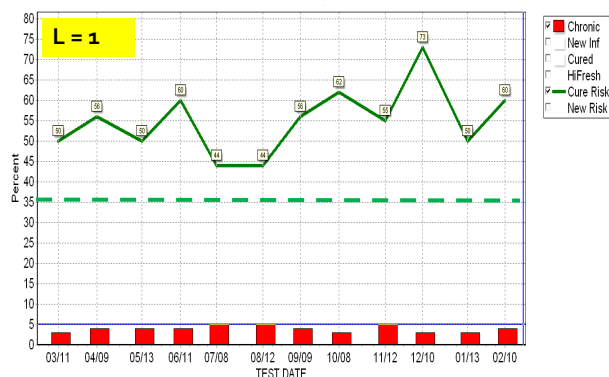


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KPI - % Chronic and Cure Risk I

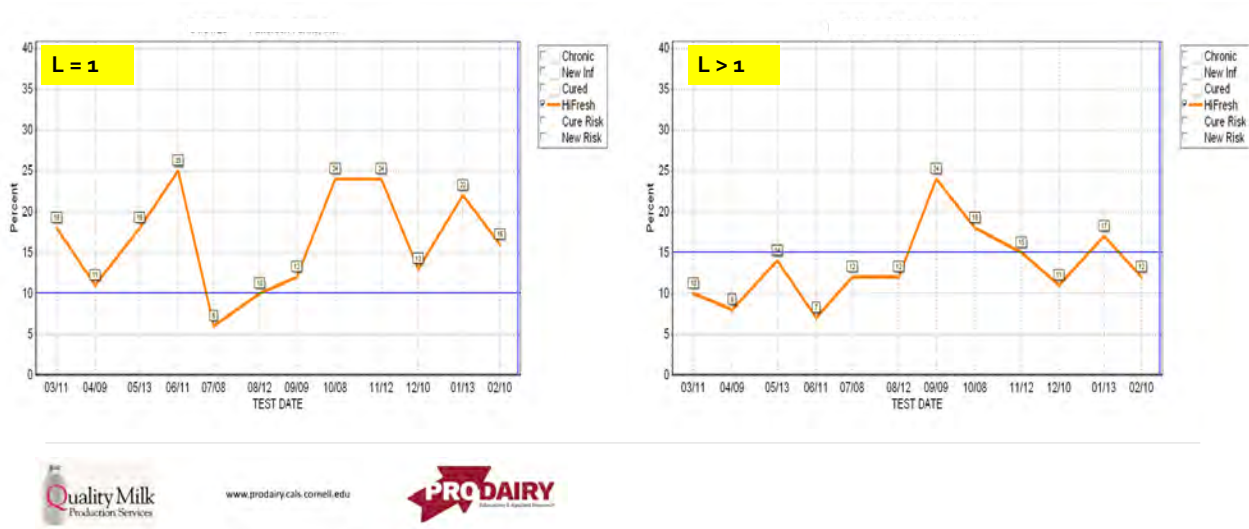


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KPI - % High Fresh I



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Dry Cow Data I

COMMAND: EVENTS\7S DRYLS

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Dry Cow Data II

- COMMAND: SUM DRYLS=4 LS1=4 FOR LACT>0 DRYLS>0 LS1>0 DIMTD>3

	LS1 <4.0	LS1 >=4.0	
Total	826	108	934
DRYLS	692	89	781
>=4.0	14%	2%	16%
<4.0	74%	10%	84%
	88%	12%	100%

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Dry Cow Data III

- COMMAND: SUM DRYLS=4 LS1=4 FOR LACT>0 DRYLS>0 LS1>0 DIMTD>3

	LS1 <4.0	LS1 >=4.0	
Total	826	108	934
DRYLS	692	89	781
>=4.0	14%	2%	16%
<4.0	74%	10%	84%
	88%	12%	100%

1. % Cure = $134/153 \times 100 = 88\%$

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Dry Cow Data IV

- COMMAND: SUM DRYLS=4 LS1=4 FOR LACT>0 DRYLS>0 LS1>0 DIMTD>3

	LS1	LS1	
	<4.0	>=4.0	
Total	134	19	153
DRYLS	14%	2%	16%
DRYLS	692	89	781
<4.0	74%	10%	84%
	826	108	934
	88%	12%	100%

1. % Cure = $134/153 \times 100 = 88\%$
2. % New Infections = $89/781 \times 100 = 11\%$

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Dry Cow Data V

- COMMAND: SUM DRYLS=4 LS1=4 FOR LACT>0 DRYLS>0 LS1>0 DIMTD>3

	LS1	LS1	
	<4.0	>=4.0	
Total	134	19	153
DRYLS	14%	2%	16%
DRYLS	692	89	781
<4.0	74%	10%	84%
	826	108	934
	88%	12%	100%

1. % Cure = $134/153 \times 100 = 88\%$
2. % New Infections = $89/781 \times 100 = 11\%$
3. % Chronic = $19/934 \times 100 = 2\%$

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Dry Cow Data VI

- COMMAND: SUM DRYLS=4 LS1=4 FOR LACT>0 DRYLS>0 LS1>0 DIMTD>3

Total	LS1 <4.0	LS1 >=4.0
DRYLS >=4.0	134 (88%)	19 (16%)
DRYLS <4.0	692 (74%)	89 (10%)
Total	826 (88%)	108 (12%)
		934 (100%)

1. % Cure = $134/153 \times 100 = 88\%$
2. % New Infections = $89/781 \times 100 = 11\%$
3. % Chronic = $19/934 \times 100 = 2\%$
4. New infection corrected cure = $((134/(1-0.11))/153) \times 100 = 98\%$

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Dry Cow Data VII

- COMMAND: SUM DRYLS=4 LS1=4 FOR LACT>0 DRYLS>0 LS1>0 DIMTD>3

Total	LS1 <4.0	LS1 >=4.0
DRYLS >=4.0	134 (88%)	19 (16%)
DRYLS <4.0	692 (74%)	89 (10%)
Total	826 (88%)	108 (12%)
		934 (100%)

1. % Cure = $134/153 \times 100 = 88\%$
2. % New Infections = $89/781 \times 100 = 11\%$
3. % Chronic = $19/934 \times 100 = 2\%$
4. New infection corrected cure = $((134/(1-0.11))/153) \times 100 = 98\%$

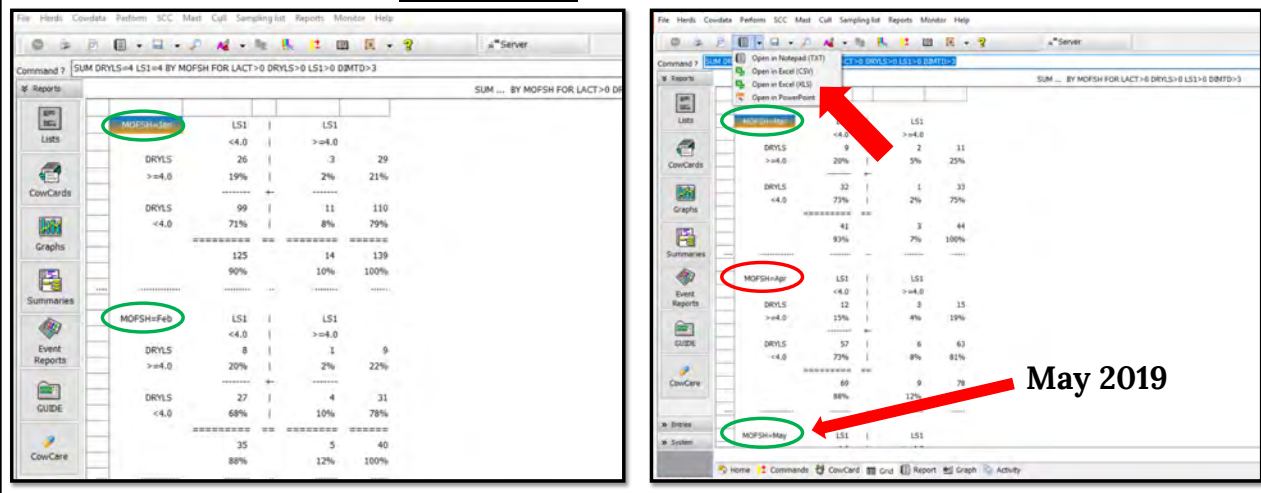
Limitation of new infection corrected cure:

- what if % new infections = **20%**
- $((134/(1-0.20))/153) \times 100 = 109\%$

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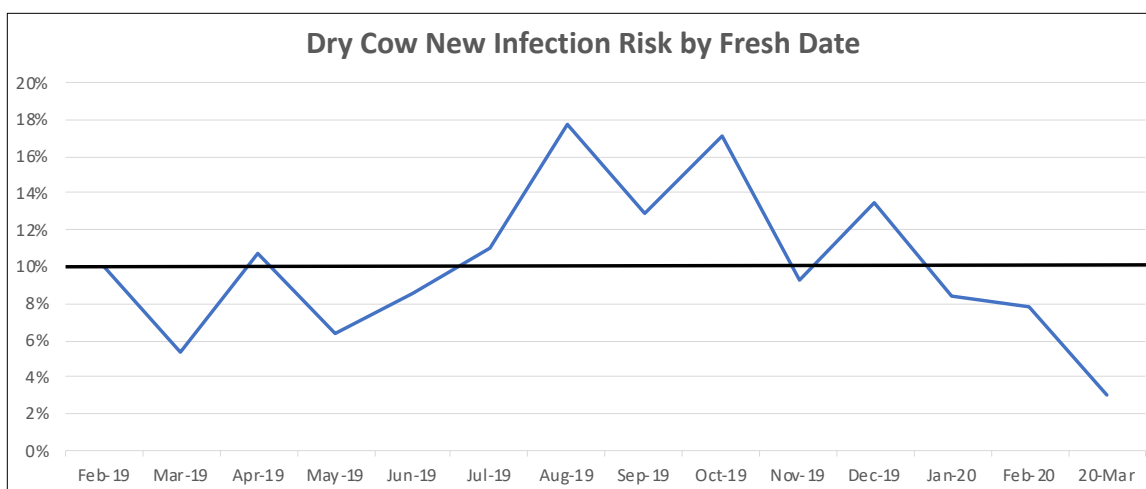
Dry Cow Data VIII

- SUM DRYLS=4 LS1=4 BY MOFISH FOR LACT>0 DRYLS>0 LS1>0 DIMTD>3



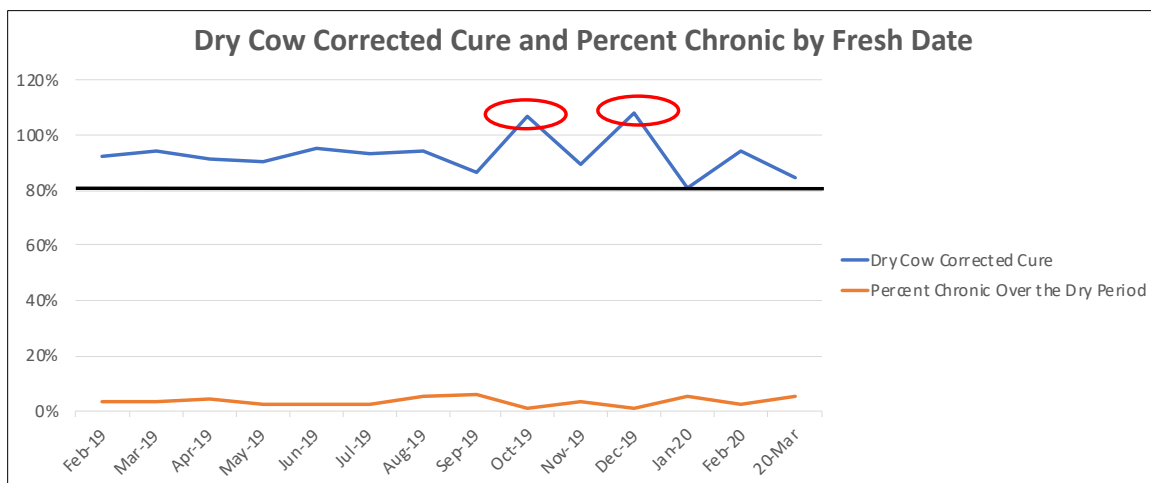
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Dry Cow Data IX



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Dry Cow Data X



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California Mastitis Test - Protocol

- **Step 1:** Take about 1 teaspoon (2 cc) milk from each quarter
- **Step 2:** Add an equal amount of CMT solution to each cup in the paddle
- **Step 3:** Rotate the CMT paddle in a circular motion to thoroughly mix the contents. Do not mix more than 10 seconds.
- **Step 4:** Read the test quickly. Visible reaction disintegrates after about 20 seconds. The reaction is scored visually. The more gel formation, the higher the score.



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California Mastitis Test - Interpretation

- N = Negative
 - No infections/inflammation. No thickening of the mixture, <100,000 cells/mL
 - T = Trace
 - Possible infections/inflammation. Slight thickening of the mixture. Trace reaction seems to disappear with continued rotation of the paddle. Approx. 300,000 cells/mL
 - Example: If all four quarters read trace there is no infection. If one or two quarters read trace, infections are possible.
 - 1 = Weak Positive
 - Infection/Inflammation present. Distinct thickening of the mixture, but no tendency to form a gel. If CMT paddle is rotated more than 20 seconds, thickening may disappear. Approx. 900,000 cells/mL
 - 2 = Distinct Positive
 - Infection/Inflammation present. Immediate thickening of the mixture, with a slight gel formation. As mixture is swirled, it moves toward the center of the cup, exposing the bottom of the outer edge. When motion stops, mixture levels out and covers bottom of the cup. Approx. 2.7 million cells/mL
 - 3 = Strong Positive
 - Infection/Inflammation present. Gel is formed and surface of the mixture becomes elevated (like a fried egg). Central peak remains projected even after the CMT paddle rotation is stopped. Approx. 8.1 million cells/mL
- University of Wisconsin: Pam Ruegg <https://milkquality.webhosting.cals.wisc.edu/wpcontent/uploads/sites/212/2011/09/california-mastitis-test-fact-sheet.pdf>

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Managing High SCC Cows I

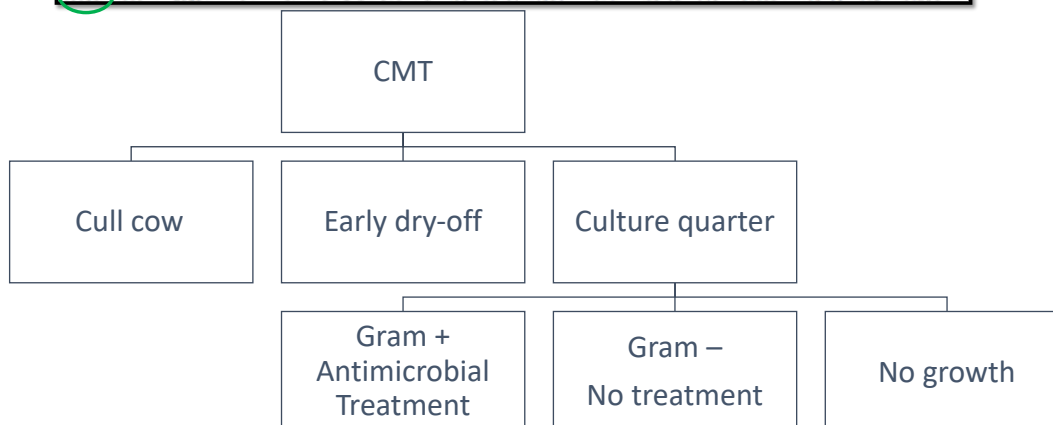
- COMMAND: ECON ID DIM RPRO NMAST DCC PLS3 PLS LS\ST

ID	DIM	RPRO	NMAST	DCC	PLS3	PLS	L	#>4	MILK	Value	SCC	%Tank	Bulk Tank after removing only this cow from tank	Bulk Tank after removing cow and all cows above it
8547	194	SLD/DIE	0	121	4.1	8.7	8.9	4	84	10.21	5972	2.9	13.15	148
9458	183	SLD/DIE	0	0	7.5	8.3	9.5	6	49	5.95	9701	2.7	13.15	148
8512	87	OK/OPEN	0	0	0	2.8	8.1	1	127	16.43	3430	2.5	13.15	149
10328	103	BRED	1	0	0	8.2	8.4	2	90	10.94	4526	2.4	13.15	149
1383	154	PREG	0	82	0.1	3.9	8.4	1	84	10.21	4223	2.1	13.15	150
9754	94	OK/OPEN	0	0	0	5.1	8.1	2	93	11.30	3430	1.8	13.15	150
425	108	SLD/DIE	0	0	2.4	7.5	8.2	3	84	10.21	3676	1.8	13.15	150
11154	72	OK/OPEN	0	0	0	0	8.4	1	64	7.78	4526	1.7	13.15	150
1657	35	SLD/DIE	0	0	0	0	8.4	1	53	6.44	4526	1.4	13.15	151
9783	57	OK/OPEN	0	0	0	0	7.9	1	80	9.72	2986	1.4	13.15	151
8697	128	SLD/DIE	1	0	2.8	5.4	7.8	3	84	10.21	2786	1.4	13.15	151
9253	301	PREG	0	229	1.9	3.2	7.8	2	83	10.09	2786	1.3	13.15	151
110	118	BRED	0	0	2.8	0.3	7.4	1	100	12.15	2111	1.2	13.15	151
8838	212	PREG	0	138	3.3	4.7	7.4	2	89	10.82	2263	1.2	13.15	151
11138	94	OK/OPEN	0	0	0	1.1	7.5	1	82	9.96	2425	1.2	13.15	151

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Managing High SCC Cows II

												Bulk Tank after removing only this cow from tank	Bulk Tank after removing cow and all cows above it					
ID	DIM	RPRO	RMST	DCC	PLS3	PLS	LS	#>4 MILK	Value	SCC	%Tank	Price \$SCC	Income	Price \$SCC	Income			
8547	194	SLD/DIE	0	121	4.1	8.7	8.9	4	84	10.21	5972	2.9	13.15	149	14921	13.15	149	14921
183	103	SLD/DIE	0	0	7.5	8.3	9.5	6	49	5.96	9701	2.7	13.15	149	14926	13.15	144	14915
8512	87	OK/OPEN	0	0	0	2.8	8.1	1	127	15.43	3430	2.5	13.15	149	14916	13.15	141	14798



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