

Quality Milk on Pasture-Based Dairy Farms



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Overview

- Present Status of Industry
- Why Milk Quality is Important
- Systematic Approach to Addressing Milk Quality

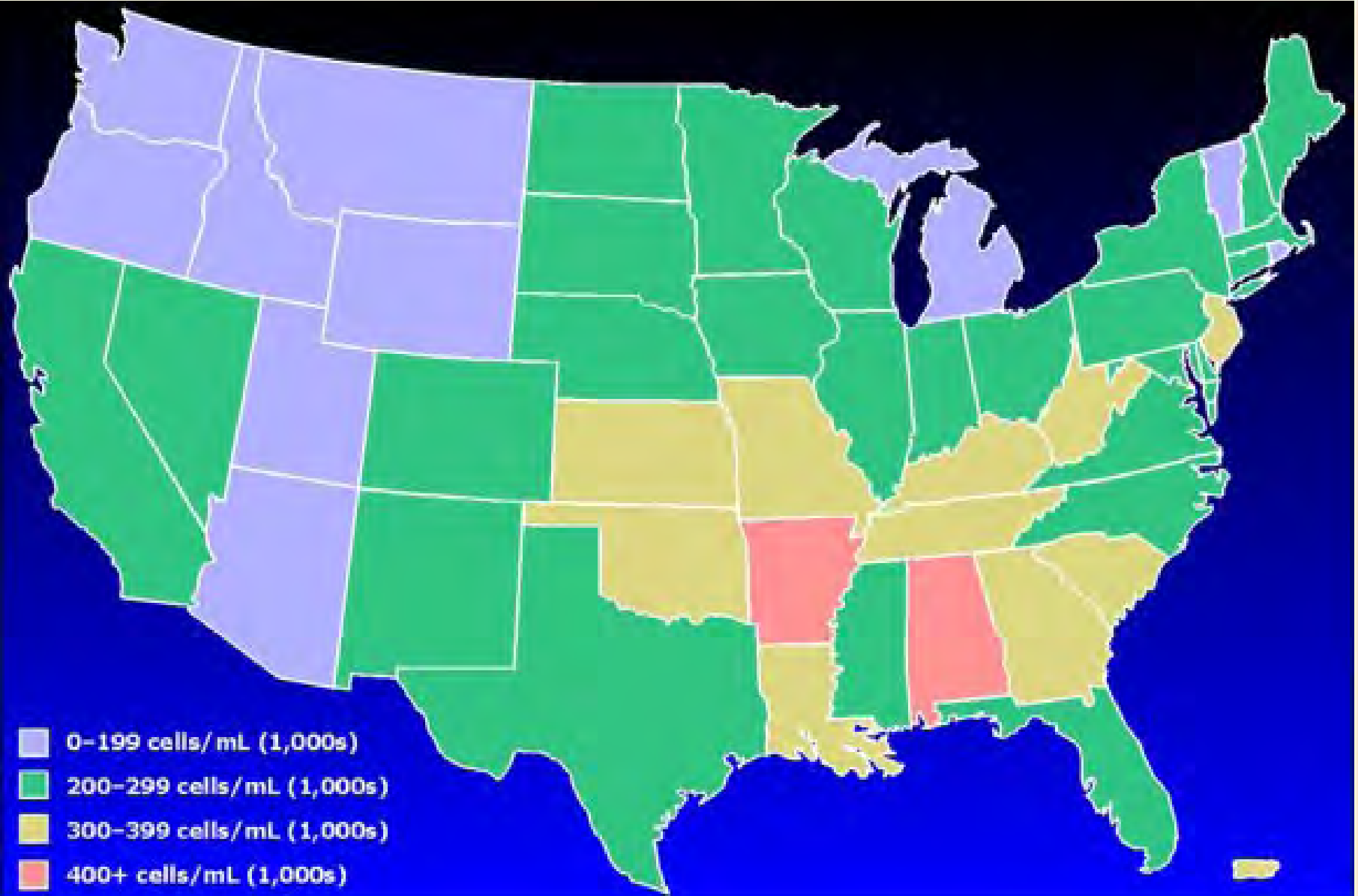


Present Status

- 750,000 Somatic Cell Count (SCC)
- Canada < 500,000 SCC
- European Union (EU), Australia, New Zealand <400,000 SCC
- EU demands <400,000 SCC from imported milk
 - weighted average of pool (USA interpretation)
 - for all herds in pool (EU interpretation)
- Originally to be implemented 10/1/10
- Still open ended, waiting on EU's response

Present Status

- NCIMS voted down reducing SCC to 400,000
26 to 25
- 10-30 % of producers average > 400,000
- This makes up 10% of the milk supply



Stricter Standards

- Industry knows that milk <250,000 extends shelf life 2 days, which increases profits 15%
- Hillmar (California and Texas) \leq 400,000
 - Krogers \leq 250,000

Why Milk Quality is Important



Milk Quality and Production

- For each increase in somatic cell score (linear score) there is a decrease in 0.6-1.3 pounds of milk/day produced.
- Lower SCC increases premiums



Milk Quality and Health

- Lower SCC herds have fewer clinical and subclinical cases of mastitis
- Consumers expect milk from healthy cows
- Mastitis, especially, toxic mastitis, can cause pain as well as death (Animal Welfare/public perception)

Milk Quality and Reproduction



Milk Quality and Reproduction

University of Missouri

		Days	# of
1st Lactation		Open	Cows
	SCC <400,000	112	4468
	SCC 401-800,000	131	748
	SCC >800,000	145	857
Older Cows			
	SCC <400,000	111	4721
	SCC 401-800,000	131	1198
	SCC >800,000	142	1717

Mastitis and Reproduction

- Cows with clinical case(s) of mastitis have increased days open
- They have disrupted heat cycles
- They have increased abortions
- This is especially pronounced if the case of mastitis occurred prior to breeding
- Likewise, gram negative organisms cause more problems (endotoxins and prostaglandins)

Conclusions

- It is no longer if but when the 400,000 SCC limit will be enacted.
- It will benefit the consumer as well as the farmer
- The benefits to the farmer will be through the health/reproduction of the cow and premiums for higher quality milk!

Excellence should be our Goal

- Do not limit yourself to 400,000



Systematic Approach to Milk Quality

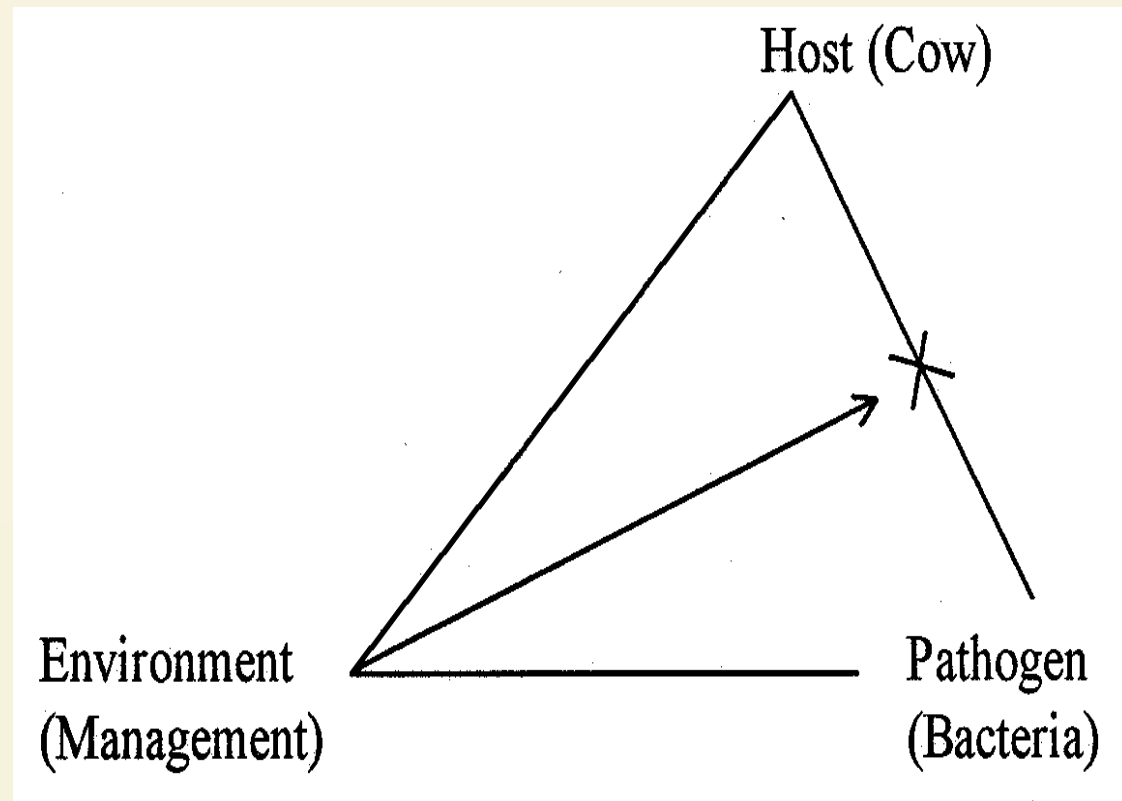


Pumpkin

10/22/2010

MASTITIS: Three factors

- Cow
- Bacteria
- Management



Host/Cow's Defense

- Teat sphincter
- Keratin plug
- Immune system



Somatic Cell Count (SCC)

- Cow's defense
- Neutrophil (white blood cells) most common
- Enhanced by nutrition



Pathogen/bacteria

- Contagious vs. Environmental
- Or both?

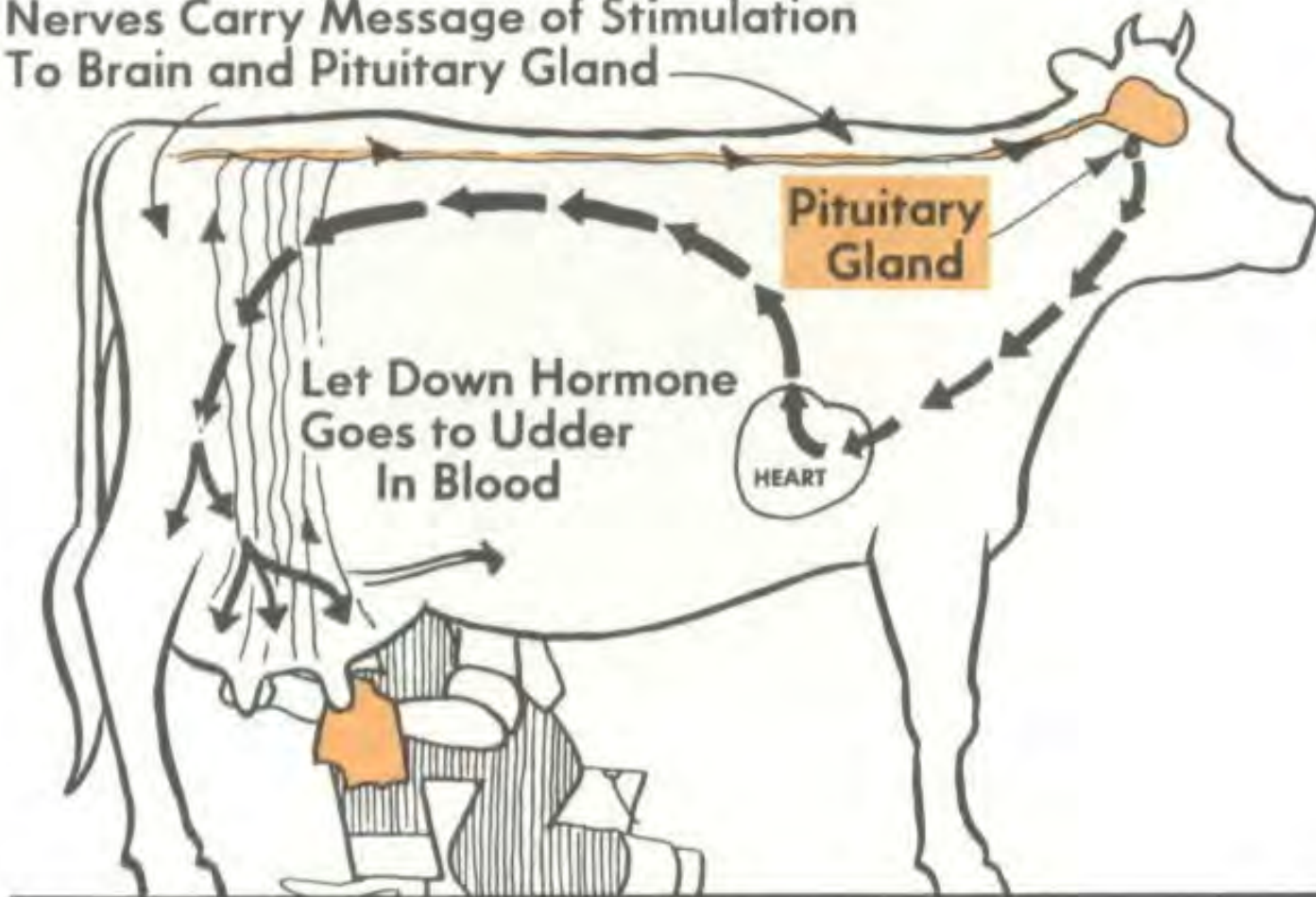


Environment/management

- Milking procedure
- Housing
- Cow comfort
- Treatment

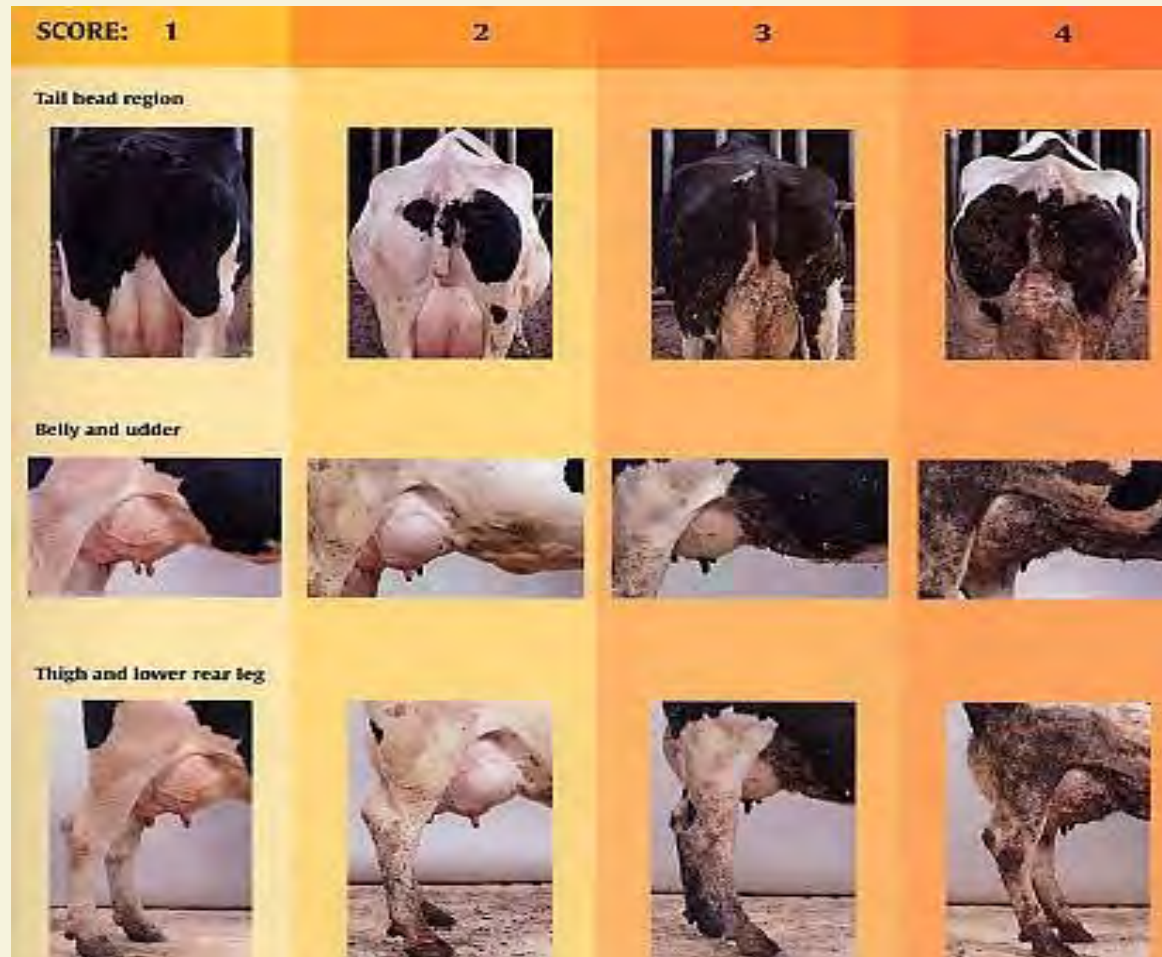


Nerves Carry Message of Stimulation
To Brain and Pituitary Gland



Let Down Hormone
Goes to Udder
In Blood

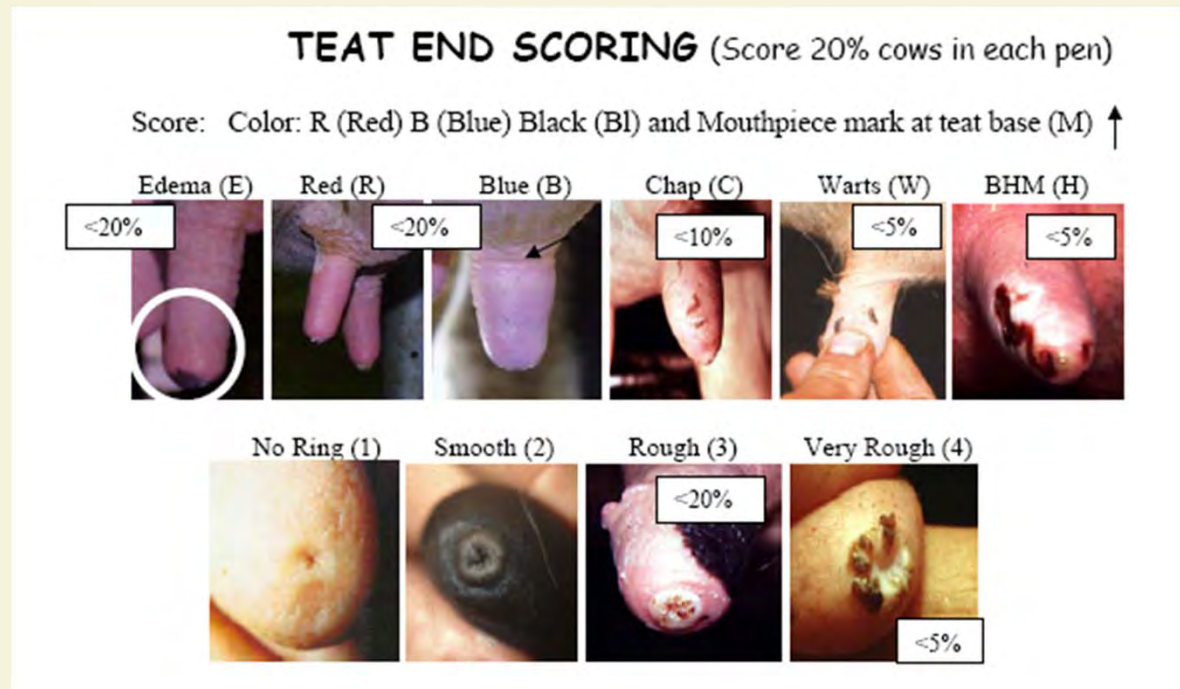
Are Your Cows Clean or Dirty?





Dr. Dan Zawisza, White Oak Veterinary Clinic

What do the teat ends look like?



Dip coverage?
It is teat dip, not teat end dip



Dr. Dan Zawisza, White Oak Veterinary Clinic

Bacterial Cultures

- Bulk Tank
 - Weekly / Monthly
 - Not a safety net!!



Bulk Tank Cultures

- Have milk hauler take 2nd take sample for 3 successive pick-ups
- Date and then freeze samples until you have all 3 (Mycoplasma)
- Submit to Lab
- Lab should run a composite culture

Interpretation

Contagious

- Staph aureus
- Strep ag
- Mycoplasma
- +/- Strep uberis

- Concentrate on the cows (i.e. cultures)
- Culling
- Segregation

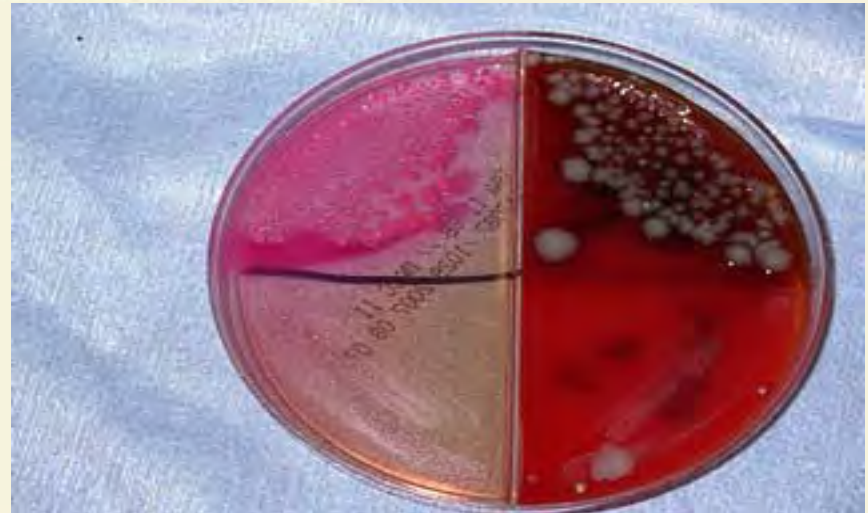
Environmental

- Coliforms
- Environmental streps
- Coagulase Negative Staph (CNS)

- Concentrate on the environment (i.e. cleanliness)

Individual Cow Cultures

- Individual Cows
 - All fresh cows
 - Includes first lactation
 - All cows with a clinical case of mastitis
 - Any purchased cows



Individual Cow Cultures

- Every case of mastitis should have a sample taken for culture.
- Prep teat
- Discard first several squirts of milk
- Angle teat/milk into sample bottle
- Place date, cow #, quarter affected, and then freeze sample

Lactating Treatment

- Sensitivities
- Labeled drug use
- Lactating Protocol

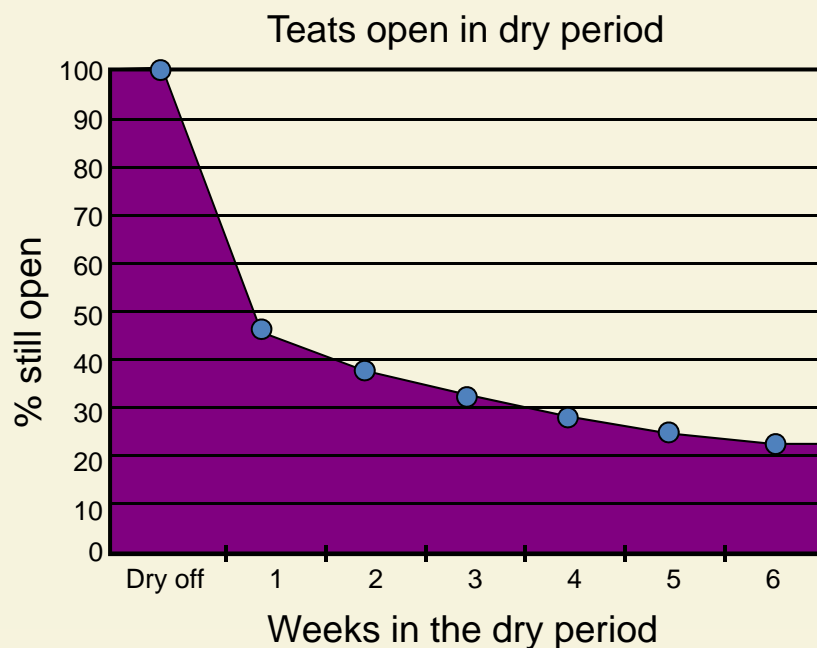


Dry Cow Therapy

- Higher cure rates over lactating
- Higher concentrations of antibiotics
- Reduces new infections, first two weeks
- Clinical mastitis reduced at freshening
- Eradication of Strep ag
- Increases milk production first 120 days
 - Berry UC Davis Dairy Sci 96 (179 kg P<0.01)

Orbeseal[®]

- Cows remain vulnerable because teats stay open throughout much—sometimes all—of the dry period.*



Orbeseal: Missouri Field Trial

Production data through June 2010

	Orbeseal	Control
First Test Date Log Score	2.57	3.08
Average SCC	221	279
Average Production	42.4	41.7
305 Day Mature Equivalent	12452	12168

Plan of Action

Pumpkin's grandson



Develop Action Plan

- **“A good plan today is better than the perfect plan tomorrow.”**
 - **General George S. Patton**



Develop Action Plan

- Who will be responsible for what?
- How will you measure and monitor?
- When will the plan be implemented?



3 M's

- Measure
- Monitor
- Manage

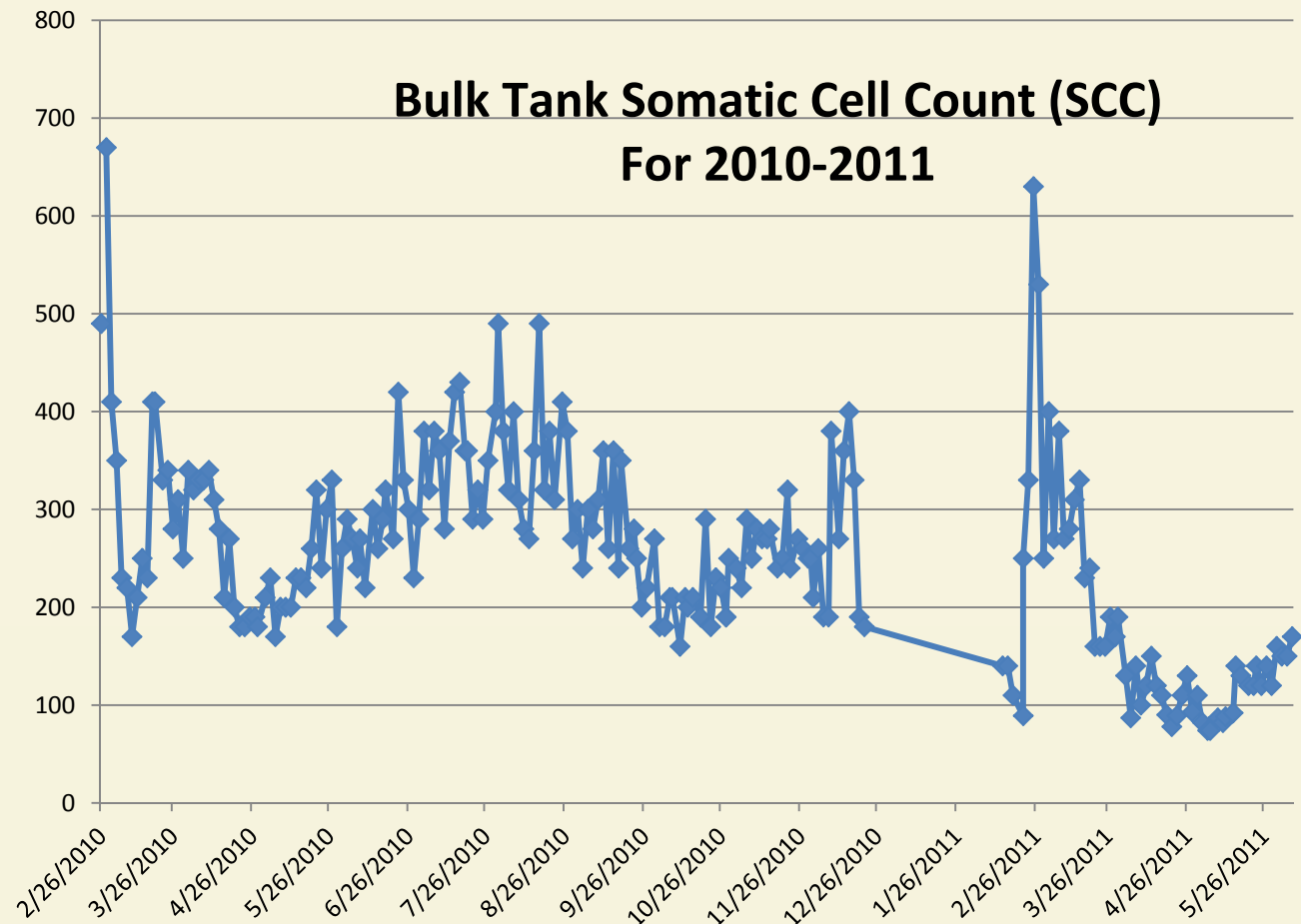
DATE	TANK	SCC X 1000	PI/SPC X 1000	Notes
1-2	1	180	3	
	2	180	5	
1-4	1	210		
	2	190		
1-6	1	210		
	2	250		
1-8	1	170		
	2	200		
1-10	1	200	70	
	2	180	3	
1-12	1	180		
	2	160		
1-14	1	190		
	2	180		
1-16	1	170		
	2	190		
1-18	1	160	1	
	2	210	3	
1-20	1	150	4	
	2	180	5	
1-22	1	190		
	2	190		
1-24	1	150	77	
	2	160	44	
02/07/2011	1	160		
	2	180		
	1			
	2			
	1			
	2			
	1			
	2			

Previous	SCC
Jan 09	217,000
Feb 09	243,000
March 09	241,000
April 09	263,000
May 09	296,000
June 09	315,000
July 09	357,000
August 09	328,000
Sept 09	300,000
Oct 09	267,000
Nov 09	231,000
Dec 09	200,000
Jan 10	173,000
Feb 10	165,000
March 10	149,000
April 10	134,000
May 10	176,000
June 10	169,000
July 10	250,000
August 10	234,000
Sept 10	256,000
Oct 10	254,000
Nov 10	214,000
Dec 10	192,000

Purple Numbers
Cost us money

3 M's: Example

Measure
Monitor
Manage



3 M's Example: Hot Sheet

Report Preview : HOT SHEET (MUST DOWNLOAD AFTER TESTDAY TO GET CURRENT SCC)

020 - HOT SHEET (MUST DOWNLOAD AFTER TESTDAY TO GET CURRENT SCC)

UNIV. OF MO FOREMOST DAIRY - 43090006
Ref.02-02

Barn Name	Days In Milk	Calv Date	Curr T.D. Milk	Cur SCC Act	Curr T.D. %Fat	Curr T.D. %Prt	Prev T.D. Milk	Pre SCC Act	Lct No.	C R	Pct Blk SCC	Lct Scr	R A
2429	148	9-08-10	52.2	3676	4.7	3.4	52	800	1		7	6.0	C
2448	60	12-05-10	82.5	2986	5.2	3.1			1		9	7.9	
759	335	3-05-10	74.4	2111	4.7	3.3	72	1600	8		6	6.2	B
755	241	6-07-10	62.5	1715	4.4	3.4	73	696	7		4	6.5	C
2376	347	2-21-10	54.4	1600	4.7	3.6	60	264	1		3	5.5	B
2426	143	9-13-10	56.0	1600	4.3	2.8	68	81	1		3	4.0	C
2315	143	9-13-10	70.6	1600	9.7	4.6	74	57	2		4	3.4	A
2506	36	12-29-10	57.6	1493	4.2	4.0			2		3	6.9	
2217	395	1-04-10	33.9	1393	4.6	4.0	38	152	2		2	2.0	A
2049	146	9-10-10	32.9	1300	3.1	3.6	37	246	5		2	5.5	E
2263	371	1-28-10	4.8	1056	2.2	4.1	38	87	2			1.5	A
2199	133	9-23-10	93.6	919	3.2	3.1	90	2599	3		3	6.7	C
2250	116	10-10-10	72.2	818	4.7	3.3	80	1213	2		2	6.2	C

Page 1 of 5 | HOT SHEET (MUST DOWNLOAD AFTER TESTDAY TO GET CURRENT SCC)

11:00 AM 2/2/2011

3M's Example: List of Chronic Cows

Report Preview : SCC - Greater Than 350,000 this Month and Last Month

016 - SCC - Greater Than 350,000 this Month and Last Month

UNIV. OF MO FOREMOST DAIRY - 43090006
Ref.02-02

Barn Name	Days In Milk	Calv Date	Curr T.D. Milk	Prev T.D. Milk	Cur SCC Act	Pre SCC Act	TD r03 SCC	TD r04 SCC	TD r05 SCC	TD r06 SCC	LTD Milk	R A T
2429	148	9-08-10	52.2	52	3676	800	857	162			6966	C
759	335	3-05-10	74.4	72	2111	1600	2986	5199	1213	174	28214	B
755	241	6-07-10	62.5	73	1715	696	1493	1213	3940	528	18241	C
2199	133	9-23-10	93.6	90	919	2599	528	2425			9536	C
2250	116	10-10-10	72.2	90	919	1213	650				7800	C
2259	111	10-15-10	86.2	89	919	373	400				7367	C
2293	331	3-09-10	40.4	45	857	400	400	857	87	50	17976	C
G-375	437	11-23-09	40.8	44	650	460	2786	1300	1300	919	27114	A
2227	103	10-23-10	102.0	109	400	606	1213				8037	A
***Averages for 9 animals (4% of herd) ***												
	217		69.4	74	1265	1064	1194	1862	1936	398	14583	

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SCC - Greater Than 350,000 this Month and Last Month

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High Quality Milk: Summary

- **An attitude of a desire for excellence**
- Proper milking procedures / teat dip
- Properly maintained milking system
- Effective dry cow therapy
- Cost effective treatment protocols
- Bacteriological monitoring system
 - monthly bulk tank analysis
 - sample, culture & treat clinical case
- Culling and segregation
 - Chronic and contagious
- Measure, Monitor, and Manage

NMC

FIVE POINT CONTROL PROGRAM

- **Teat Dipping**
- **Dry Cow Therapy**
- **Milk Machine Maintenance**
- **Treat Clinical Cases Early and Thoroughly**
- **CULL CHRONICS**