INCREASING YOU DAIRY’S PROFITS WITH A PROPER MILKING ROUTINE

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The Udder Doctor

Work on milk quality in 26 countries and 45 states

Work on herds ranging from 20 cows to over 22,000 cows
My Office, Small but practical!

I am more famous than you even realized!

Most people say it is my best view!!!
Why Men Should NEVER Take Messages for Their Wives!!

The Difference Between Men and Women
Dr. Gordy Jones

You heard his great success story

Let me tell the “rest” of the story

The Dairy Industry Is Changing Rapidly

You Need to Change to Stay Competitive

Those with quality milk will be competitive!
DAIRY FARMING:

Where else can you work 20 hours a day, 7 days a week, 365 days a year and still not make money.

Milking cows can be extremely stressful.

The Quality of Milk is Determined at the Dairy.
Why Low SCC Is So Important!!

“The dairy industry will either have to keep up with the changing definition of **QUALITY** and ultimately get ahead of it, or get stomped by the stampede of public opinion.”

Dr. Rick Bennett
University of California

Clinical Mastitis
It is the subclinical mastitis that robs you blind!

Milk Quality: A World Wide Issue

Quality is a Continuous Improvement Process
QUALITY MILK IS IMPORTANT TO ALL FARMS REGARDLESS OF HERD SIZE!

Utilize Dairy Comp 305 SCC Records To Make Proper Decisions

<table>
<thead>
<tr>
<th>PVYLG</th>
<th>4.0</th>
<th>81</th>
<th>191</th>
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<tbody>
<tr>
<td>NEW</td>
<td>11%</td>
<td>8%</td>
<td>19%</td>
</tr>
<tr>
<td>LGSCC:4.0</td>
<td>--------</td>
<td>--------</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UNINFECTED</th>
<th>692</th>
<th>84</th>
<th>776</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNINFECTED</td>
<td>72%</td>
<td>9%</td>
<td>81%</td>
</tr>
</tbody>
</table>

Somatic Cell Counts

❖ Certainly the higher the Somatic Cell Count is the lower the expected milk production from the cow (herd)

❖ Somatic Cell Counts are a response to damage in the udder (most often caused by bacteria)

❖ High S.C.C. follow infection – i.e. after the cause

❖ More enlighten discussions of mastitis control include cause of infection
The probability of mastitis increases with increasing germ loads on the teat ends.

Somatic Cell Counts are not Overemphasized!

Specific bacterial identification and epidemiology are underemphasized!!!

So where is the best place to start to improve milk quality?
Implement the Mastitis Triangle

- Great Milking Procedures
- Clean, Dry, and Comfortable
- Proper Functioning Equipment

You Have Heard All Of This Information Before

This is not repetition
JUST CLARIFICATION

SO PAY ATTENTION!!

This Presentation Covers
The Milking Routine,
HOWEVER

TO PRODUCE QUALITY MILK
DON’T FORGET YOU

MUST HAVE A PROPER FUNCTIONING MILKING MACHINE
AND
MUST KEEP COWS IN A CLEAN AND DRY ENVIRONMENT.
Biggest Challenge in Mastitis Control

Fine Tune Milking Practices

Milking Procedures

- Must be consistent between every milker at every milking
- Must understand why the procedure is being done
- Procedure should be posted to promote consistency among all employees

Properly Train New Employees

Make sure they clearly understand what your dairy’s milking routine is!

EXPLAIN
SHOW
PRACTICE

Employees

Too many dairies are held hostage by their milkers

There are no consequences to poor performance

The Excuse: “At least they show up!”
Milking Routines:

Important to:

- Tie Stall/Stanchion Barns
- Parlors
- Flat Barn Parlors

Consistent Milking Routine
(Stanchion/Tie Stall)

- **Step One**
  - Strip and Predip next cow to be milked, leave

- **Step Two**
  - Return with unit, then dry and apply unit to cow

**TIMING BIGGEST ISSUE!!**

Consistent Milking Routine
(Stanchion/Tie Stall)

- **Timing too long**
  - Most common
  - Prep next cow after unit attachment of previous cow

- **Proper timing**
  - When cow milking almost done, then strip and predip next cow.

Parlor Milking Routines:

1. **Territorial**: each milker performs all procedures within his/her territory.

2. **Sequential**: each milker performs one procedure(s) on all cows.

3. **Group**: Territorial with one milker working in two or more territories.
**Different Milking Routines**

- **Grouping**: Strip at Wipe (8 sec)  
  Attached (4 sec)  
  Each color represents a different worker

**Sequential Routine**

Each person has their own task to do on each side of parlor

- Usually see at least two people in the parlor
- Very Difficult to control timing

**Consistent Milking Routine**

(Parlor)

- **Territorial**
  - Most Consistent Timing
  - Fastest Milking
  - Best Quality

**Sequential At It’s BEST!!**
Consistent Milking Routine (Parlor)

✿ Step One
- Strip and Predip
  group of 3-8 cows
✿ Step Two
- Dry and Apply
  group of 3-8 cows

Consistent Milking Routine (Flat Barn Parlor)

✿ Step One
- Predip cow and strip
  5 squirts per teat
✿ Step Two
- Dry each teat for 5
  seconds, then gently
  apply unit

Consistent Milking Routine (Rotary Parlor)

✿ First Person
- Strip teats and Predip
✿ Second Person
- Dry teats and apply unit
✿ Third Person
- Monitor units and post dip

Parlor Performance Goal

The goal is to have all units attached to all cows within 4 to 5 minutes after the entrance gate opens.
Rotary Parlors

Define people positions

Routines Change

The longer the employees are working at the dairy, The faster they become.

Making proper adjustments for their experience is important

Dairy with Mastitis Problem

Take A Good History

- Do you strip teats: yes
- Do you predip: yes
- Do you dry teats: yes
- Do you teat dip: yes
- Do you dry cow treat: yes

Biggest Challenge for Success

To know the difference between normal and abnormal.

Farm doing everything they should, so why do they have a mastitis problem??
Goals of Milking: “Milk Cows”

* Quickly as Possible
* Completely as Possible
* Gently as Possible

Milking Practices Results in:

- Faster Milking
- More Milk Production
- Better Milk Quality

Poor Advice

Is as worthless as a parachute that opens on the second bounce!

“Milkability”

The Goal is to Attach a Machine to a Clean, Dry, Well Stimulated Teat!
Milking Management
Number 1 Goal

* Reduce bacteria numbers on every cow’s teat

Maximize oxytocin release by employing procedures that give clean, dry, and stimulated teats

Gloves Decrease Risk

All milkers MUST wear gloves
Gloves
I tried them and saw no results

Cleaning Gloves

Cleaning Gloves

Spring Automatic Faucets
Proper Lag Time

The single biggest factor to rapid and complete milk outs.

GOAL = 90+ SECONDS
(Fore Strip to Unit Attachment)

Proper Lag Time

60 seconds was considered the “Old” gold standard!

Latest data shows longer is much better than too short

Benefits Of Proper Lag Time

REMEMBER, REGARDLESS OF YOUR HERD SIZE

PROPER LAG TIME YIELDS AN EXTRA $90 TO $150 PER COW PER YEAR OF ACTUAL PROFIT!!

Properly foremilked cows will have consistent milk letdown

✦ Teats will “plump up”
✦ Good milk flow after machine attachment
✦ 90 secs
Fore-Stripping

* Strongest Signal to Let Down Milk
* Remove Worst Quality Milk
* Earlier Mastitis Detection
* Faster Milking
* More Milk Production
* Decrease New Infections

NEW STUDY SHOWS STRIPPING HELPS!

* Cows not stripped:
  Flow rate average 2.3 kg/min
  Average milk time  5.6 minutes

* Cows stripped:
  Flow rate average 2.6 kg/min
  Average milk time  4.6 minutes

FORE STRIPPING

Define the number of strips on each teat!

Minimum of 2 actual squirts of milk, NOT just the motion of stripping!

FORE STRIPPING

Either Strip then predip
OR
Predip then Strip

The Choice Is Yours!
FORE STRIPPING
If teats are stripped first, more organic matter is removed.

If teats are stripped after predip, too much predip may be removed so less bacteria killed.

Pre-Dipping
Reduces bacteria on teats
Requires contact time
Must be wiped off

Pre-dip is the best way to remove bacteria from teats

Milking Procedure Successful Predipping
* Complete coverage
* 20 to 30 seconds contact time
Alternative Pre-Dipping
Teat Foamers

* Excellent Cleaning
* Great Stimulation
* See Cleaner Milk Filters immediately
Best Ways to Reduce Bacteria on Teats Compared to No Udder Prep

<table>
<thead>
<tr>
<th>Method</th>
<th>Reduction (%)</th>
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<tbody>
<tr>
<td>Dry Towel Only</td>
<td>-4%</td>
</tr>
<tr>
<td>Wet Towel Only</td>
<td>-40%</td>
</tr>
<tr>
<td>Wet Towel + Udder Sanitizer</td>
<td>-40%</td>
</tr>
<tr>
<td>Wet Towel and Manual Dry</td>
<td>-77%</td>
</tr>
<tr>
<td>Wet Towel, Udder Sanitizer, and Manual Dry</td>
<td>-80%</td>
</tr>
<tr>
<td>Predip and Manual Dry</td>
<td>-85%</td>
</tr>
</tbody>
</table>

Source: Cornell University

Udder Prep
Best You Can Do Is Reduce Bacteria By 85%

Toweling
- Proper
  - removes water
  - removes soil
- Improper
  - redistributes filth
  - can spread pathogens

1,000,000 Bacteria At Start
100,000 Bacteria At Start
150,000 After Cleaning
15,000 After Cleaning
Proper use of towels + or $\approx$ one towel per cow

Drying Teats
- Every Drop of Water That Goes on the Udder Must Come Off
- Bacteria Can’t Walk, but They Can Swim
- Once Teats are Wiped Dry, Keep Your Hands Off!
- Number One Step for Reducing Bacteria Numbers on Teats

Drying Teats
- IT IS EXTREMELY DIFFICULT TO GET A TEAT DRY WITH A DAMP CLOTH
- REMEMBER, THE DRYING CLOTH WILL REMOVE THE MOST BACTERIA FROM THE TEAT
Teats must be this dry!!!

**Cloth Towels**

* Should be one towel per cow
* Always wipe teat with clean surface of towel (Hard to clean a teat with a dirty towel)
  * Wipe all four teats, then flip towel and wipe again
  * Wipe two teats, flip towel and wipe other 2 teats
  * Wipe farthest two teats first, then wipe closet two teats last.
  * Keep moving towel so each teat is wiped with a clean part of the towel
* Evaluate Towel “Health” Routinely

**Towel Monitoring**
Drying Teats

Making the physical pass across the teat ends has the biggest influence on milking speed and quality milk.

The drying removes the most bacteria from the cows teats.
Improper Teat Drying

What About The Teat End??

Proper Teat Drying

Twist Method Gets The Teat End Clean!!

Teat Cleanliness Scoring System

<table>
<thead>
<tr>
<th>Scoring System</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>No visible dirt or dip</td>
</tr>
<tr>
<td>2</td>
<td>Visible dip stain</td>
</tr>
<tr>
<td>3</td>
<td>Small amount of dirt or manure</td>
</tr>
<tr>
<td>4</td>
<td>Large amount of dirt or manure</td>
</tr>
</tbody>
</table>

Milking Routine Makes A BIG Difference

<table>
<thead>
<tr>
<th>Bacteria</th>
<th>Normal Routine No Teat Ends</th>
<th>Normal Routine Clean Teat Ends</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTAGIOUS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staph Aureus</td>
<td>2,400</td>
<td>1,650</td>
</tr>
<tr>
<td>ENVIRONMENTALS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strep Species</td>
<td>2,450</td>
<td>25</td>
</tr>
<tr>
<td>Coliforms</td>
<td>22,500</td>
<td>5</td>
</tr>
</tbody>
</table>

Utilize your bulk tank cultures because they are a source of information on how good your cow’s teats are being cleaned. Bulk tank cultures definitely show inconsistency!
On Farm Milker Monitoring

- Set up line sampler
- Sampled after each shift
- Incubated and counted colonies –
- goal: <1000 colonies for non-ag streps
  <100 coliforms

### Environmental Bacteria Counts in Milk Line Samples

<table>
<thead>
<tr>
<th>Date/Shift</th>
<th>Non-ag Strep cfu/ml</th>
<th>Coliforms cfu/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/11/02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shift 1</td>
<td>1,340</td>
<td>860</td>
</tr>
<tr>
<td>Shift 2</td>
<td>600</td>
<td>140</td>
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<tr>
<td>Shift 3</td>
<td>550</td>
<td>250</td>
</tr>
<tr>
<td>10/12/02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shift 1</td>
<td>2,880</td>
<td>810</td>
</tr>
<tr>
<td>Shift 2</td>
<td>800</td>
<td>310</td>
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<tr>
<td>Shift 3</td>
<td>3,200</td>
<td>430</td>
</tr>
<tr>
<td>10/13/02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shift 1</td>
<td>1,668</td>
<td>450</td>
</tr>
<tr>
<td>Shift 2</td>
<td>850</td>
<td>153</td>
</tr>
<tr>
<td>Shift 3</td>
<td>960</td>
<td>235</td>
</tr>
</tbody>
</table>

### Environmental Bacteria Counts by Milking Shift

<table>
<thead>
<tr>
<th>CFU/ml Milk</th>
<th>Weekday</th>
<th>Weekend</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
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<td>7</td>
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<tr>
<td>5</td>
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<td>6</td>
<td>10</td>
<td>11</td>
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<tr>
<td>7</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>8</td>
<td>14</td>
<td>15</td>
</tr>
</tbody>
</table>

### Environmental Bacteria in Bulk Tank Milk

<table>
<thead>
<tr>
<th>Non-ag Strep Counts by Milking Shift</th>
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<tbody>
<tr>
<td>Time in Days</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>1000</td>
</tr>
<tr>
<td>9000</td>
</tr>
<tr>
<td>8000</td>
</tr>
<tr>
<td>7000</td>
</tr>
<tr>
<td>6000</td>
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<td>5000</td>
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<td>4000</td>
</tr>
<tr>
<td>3000</td>
</tr>
<tr>
<td>2000</td>
</tr>
<tr>
<td>1000</td>
</tr>
</tbody>
</table>

### Environmental Bacteria Counts in Milk Line Samples

<table>
<thead>
<tr>
<th>Date/Shift</th>
<th>Non-ag Strep cfu/ml</th>
<th>Coliforms cfu/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/14/02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shift 1</td>
<td>2,540</td>
<td>560</td>
</tr>
<tr>
<td>Shift 2</td>
<td>600</td>
<td>140</td>
</tr>
<tr>
<td>Shift 3</td>
<td>550</td>
<td>250</td>
</tr>
<tr>
<td>10/15/02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shift 1</td>
<td>880</td>
<td>420</td>
</tr>
<tr>
<td>Shift 2</td>
<td>650</td>
<td>150</td>
</tr>
<tr>
<td>Shift 3</td>
<td>520</td>
<td>130</td>
</tr>
<tr>
<td>10/16/02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shift 1</td>
<td>3,668</td>
<td>650</td>
</tr>
<tr>
<td>Shift 2</td>
<td>880</td>
<td>122</td>
</tr>
<tr>
<td>Shift 3</td>
<td>460</td>
<td>45</td>
</tr>
</tbody>
</table>
Udder Prep
SUMMER SECRET

* DRY WIPE TEATS BEFORE PREDIPPING

GREATLY REDUCES ORGANIC LOAD

UNIT ATTACHMENT

☞ Minimal air leakage
☞ Decrease environmental mastitis
☞ Better let down

MUCH MORE IMPORTANT THAN MOST PEOPLE REALIZE!

Organic load reduces predip efficacy
Adjust Milking Unit Properly

Adjust Unit So It Hangs Squarely With a Slight Forward Pull

Good Parlor Alignment

Better Approach To Unit Alignment – Vertical and Horizontal
Better Approach To Unit Alignment – Vertical and Horizontal

PROPER HOSE ALIGNMENT

Keeping hoses together allows for better alignment

PROPERLY STIMULATED COWS

Excellent Let Down

Lactocorder
Rapid uninterrupted increase in flow to peak

EXCELLENT

Poor initial letdown with only cisternal dump.

Lower flow rate cow.

OVER MILKING AT END OF MILKING

Low flow rate
It surprised many people to learn than milking routine changes were almost immediate to the cow’s flow rates. There is not a time to adjust as we expected.

A great teaching tool.

Three Types of Dipping
- Predipping
- Postdipping
- Shitdipping

SHIT DIPPING
Is **Not** Effective!
Teat Dipping Rules

1 - Dip Teats, Don’t Spray
2 - Clean Dipper and Fresh Dip
3 - Cover 90% of the Entire Teat
4 - Use an Approved Teat Dip
Teat Dipping

Primary Reason to Teat Dip is to Remove the Milk Film Left on the Teat After Milking With a Layer of Germicide

Post Dipping
Which is the proper way to teat dip?

5.5% of dairies do no post milking disinfection
Teat Dipping
Splash Method

Teat Dipping
Splash and Splash Method

Teat Dipping
Squeeze Method

Teat dipping is superior over teat spraying

Dipping reduces usage & results in better coverage of teats.
Proper teat dip application does not include spraying!

Economics of Dipping vs Spraying

If you dip teats, you can afford to buy a quality teat dip on the savings of dip use over spraying!

New Sprayer System
Monitor the Results of Good Udder Prep

Milk Filter Scoring
Best results when done after each milking by the people actually milking the cows

1. Clean as new
2. Light brown, no gargot
3. Medium brown, some gargot
4. Medium brown, lot gargot
5. Dark brown, lot gargot

Might be some issues with teat cleaning??

Milk Filter Scoring
Poor milk filter scores tells us:

1. Milkers not properly cleaning the cow’s teat/teat ends.
2. Milkers not properly detecting abnormal milk.
The probability of mastitis increases with increasing germ loads on the teat ends. Full hygiene decreases the probability.

Keep Exterior Of Units Clean
- Use drop hose with detergent/sanitizer
- After each pen of cows MINIMUM
- Preferably after each side of parlor
- Reduces risk of new infections
  - Environmentals and Mycoplasma

CLEAN STILL MEANS QUALITY

Keep Exterior Of Units Clean

The Machine
System Cleaning does not only apply to the internal surface of a milking system. It also applies to the external surfaces as well. Both surfaces play a major role in bacteria counts and the level of environmental mastitis.
Front View Of Unit on Jetters

Back Side of Units on Jetters

Unit Cleaning

Reduces clean up time and water use by 25%
Basic Steps to Producing Quality Milk

1) Strip 2-3 squirts of milk from each teat with a gloved hand
2) Predip each teat covering at least 90% and leaving it on for a minimum of 30 seconds
3) Wipe teats dry making certain teat wall and teat ends are properly cleaned
4) Attach machine 90 seconds after stripping
5) Post dip every teat with an approved product and cover at least 90% of each teat

The Most Successful Milk Quality and Udder Health Programs

1) Keep cows clean, dry, and comfortable
2) Utilize full hygiene programs
3) Use both somatic cell testing and culturing as monitors
4) Know the pathogens they are dealing with
5) Know the epidemiologic control methods for the pathogens they find

Herd SCC

Every herd is capable of producing milk with an SCC in the bulk tank less than 150,000

Size doesn’t matter, ATTITUDE does!!

If you always do what You have always done

You always get what you always got!
Sometimes ... when you cry ... no one sees your tears ... 
Sometimes ... when you are worried ... no one sees your pain ... 
Sometimes ... when you are happy ... no one sees your smile ... 
But fart just once more...