

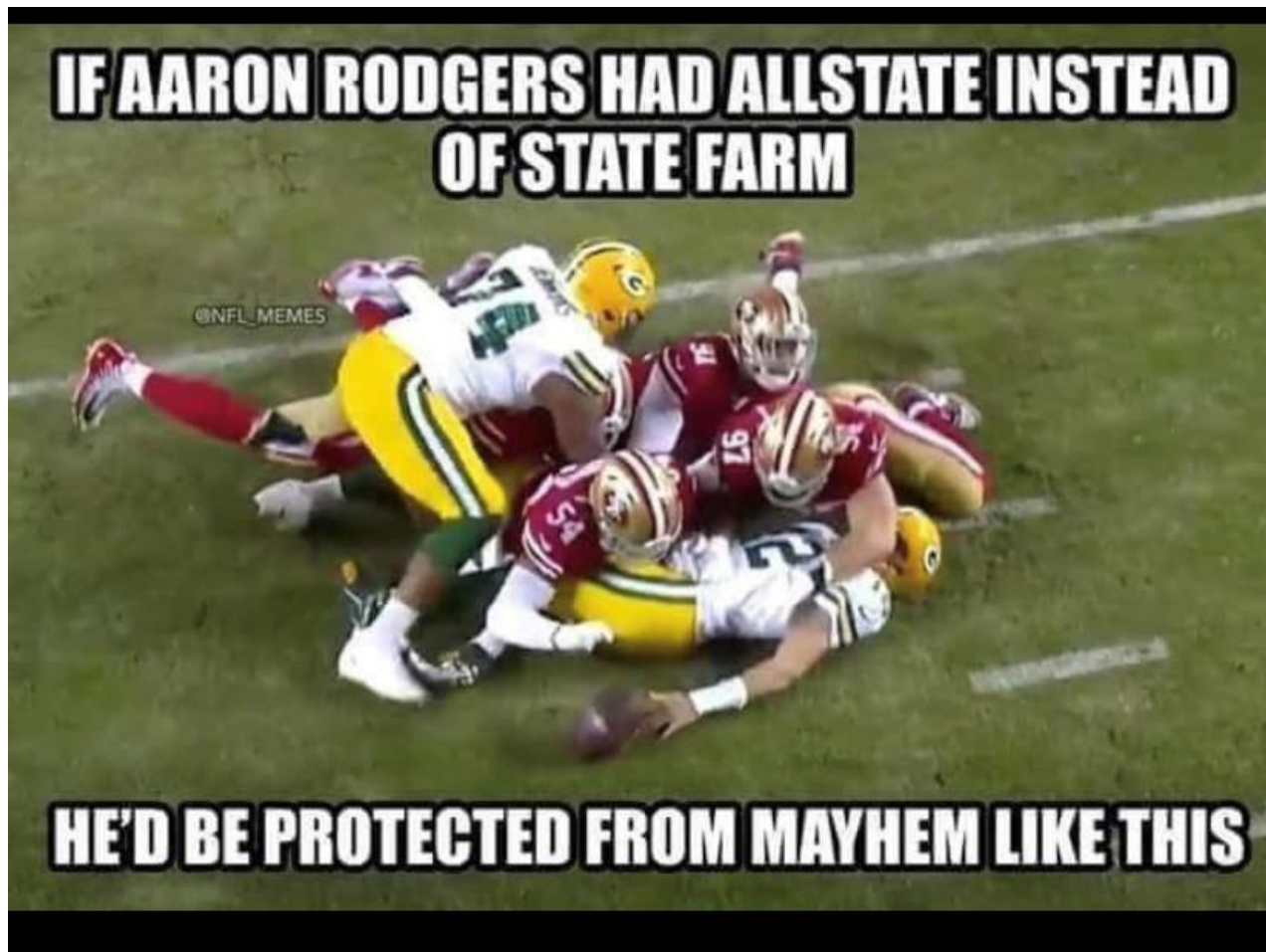
Milk Quality Tips

Looking at the Whole Picture

2020 Georgia Dairy Conference
Savannah Georgia

Dr. Andy Johnson
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OK Lets get this out of the way first!

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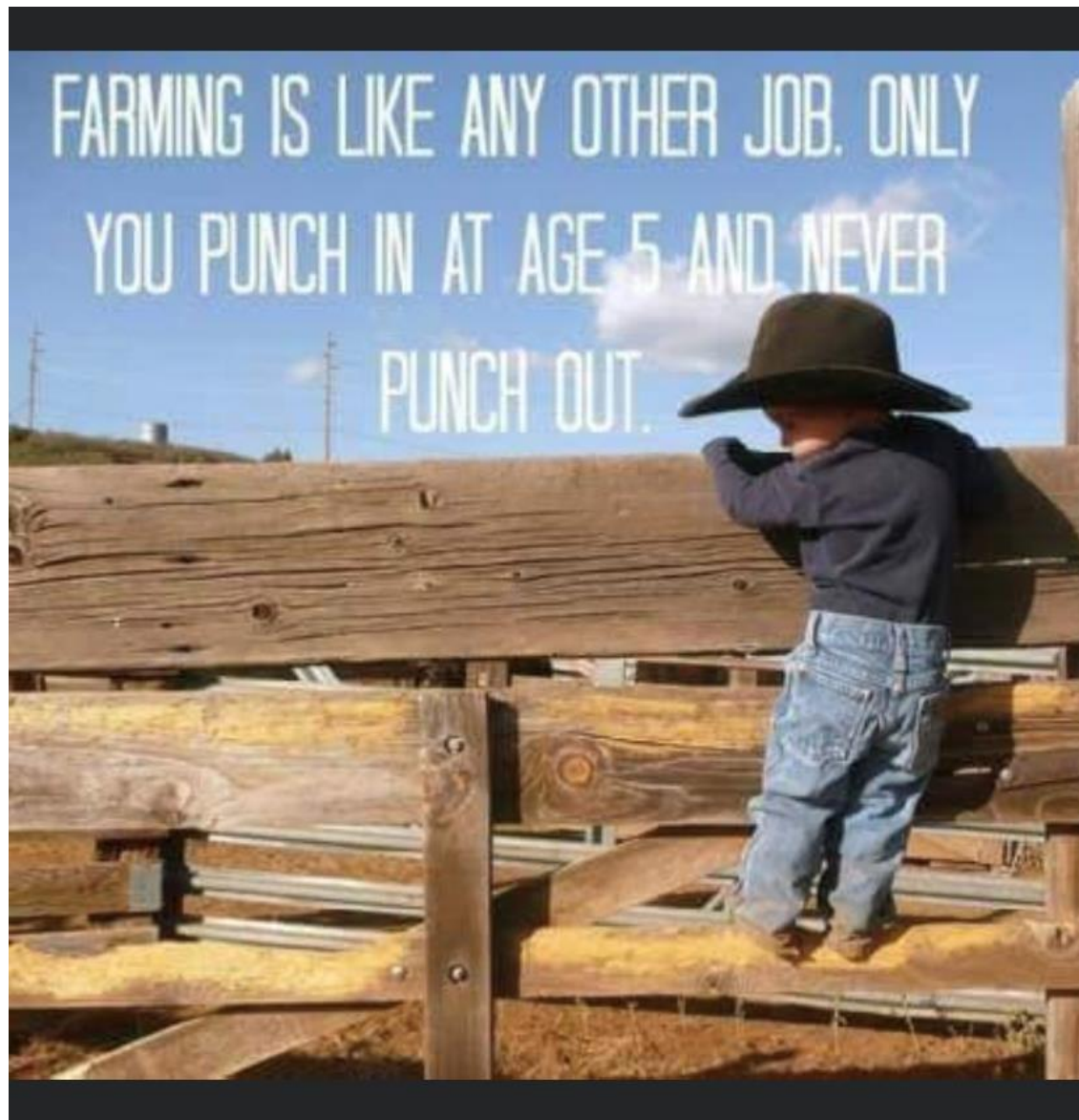


The Udder Doctor

**Work on milk quality
and cow comfort
in 28 countries and 47 states**

**Work on herds ranging from
20 cows to over 22,000 cows**





This is definitely true!



**THE PROBLEM WITH
POLITICAL JOKES
IS THAT THEY
SOMETIMES
GET ELECTED**

Has the world passed me by?



Keys to my 40 plus year
successful career!



No one really cares how much
YOU know until they understand
how much **YOU** care



If your client survives
YOU survive!

The key statement for
EVERYONE'S SUCCESS:

Whenever you lose interest in
being better at something,
chances are **YOU** already have
stopped being good at it

This is true for dairy farms as well.

The Dairy Industry Is Changing Rapidly

You Need to Change to
Stay Competitive

Those with quality milk will
be competitive!



Our Milk Quality My Clients

**100 dairy farms milk
approximately 58,000 cows**

**For last 6 months
which includes every load being
tested, the average SCC is
112,000 with 88.5 pounds of milk**



Milk Quality

The biggest opportunity on any farm with low milk prices to make the biggest impact on the price paid for their milk.

Many milk markets are cutting dairies and there is no where for many dairies to go. The key to keeping a milk market moving forward is quality.



The Quality of Milk is Determined at the Dairy





Why Low SCC Is So Important!!

**NOT
EVERY BODY
NEEDS
MILK**





Milk Quality:

A World Wide Issue



QUALITY MILK
IS IMPORTANT
TO ALL FARMS
REGARDLESS OF
HERD SIZE!



SCC of Each Dairy

1. Is exactly what they have decided it should be
2. **Reflects the management decisions of the dairy (housing, milking routine, milking equipment)**
3. **Truthfully, It reflects the true attitude of the dairy**



Herd SCC

Every herd even in SE is
capable of producing milk
with an SCC in the bulk tank
less than 200,000

Size doesn't matter,
attitude does!!



A Top Herd

4,850 cows through parlor

93 pounds/head/day

106,000 SCC

5.5 to 6 turns per hour

7 cows being treated for mastitis

preg rate for year 28% no shots



The Mastitis Triangle



Quality Milk Programs

Need a well organized plan to
produce quality milk on the dairy
and sell more milk to the
milk plant vs. dumping
down the drain



Quality Milk Programs

Two Critical Rules

1. Do what is best for the cow
2. Do what is best for the dairy



Milk quality starts with the Cow and her environment

Cows in a dirty environment will
Have a higher risk to new infections
Keep the cow clean, dry and
Comfortable 24 hours a day!



Milk Quality Priorities

- Environment
- Bacteria
- Milking Routine
- Milking Equipment



Most SCC and Clinical Mastitis
issues are coming from the
cow's environment

Not the milking routine or
milking equipment



LISTEN TO THE COW!



They always tell the truth or the real story!!



Does a dirty foot really matter?

Where is the leg located?



Right By the Udder!!





What Are The Stalls Telling You??
Less Than 5% Is The Goal!!

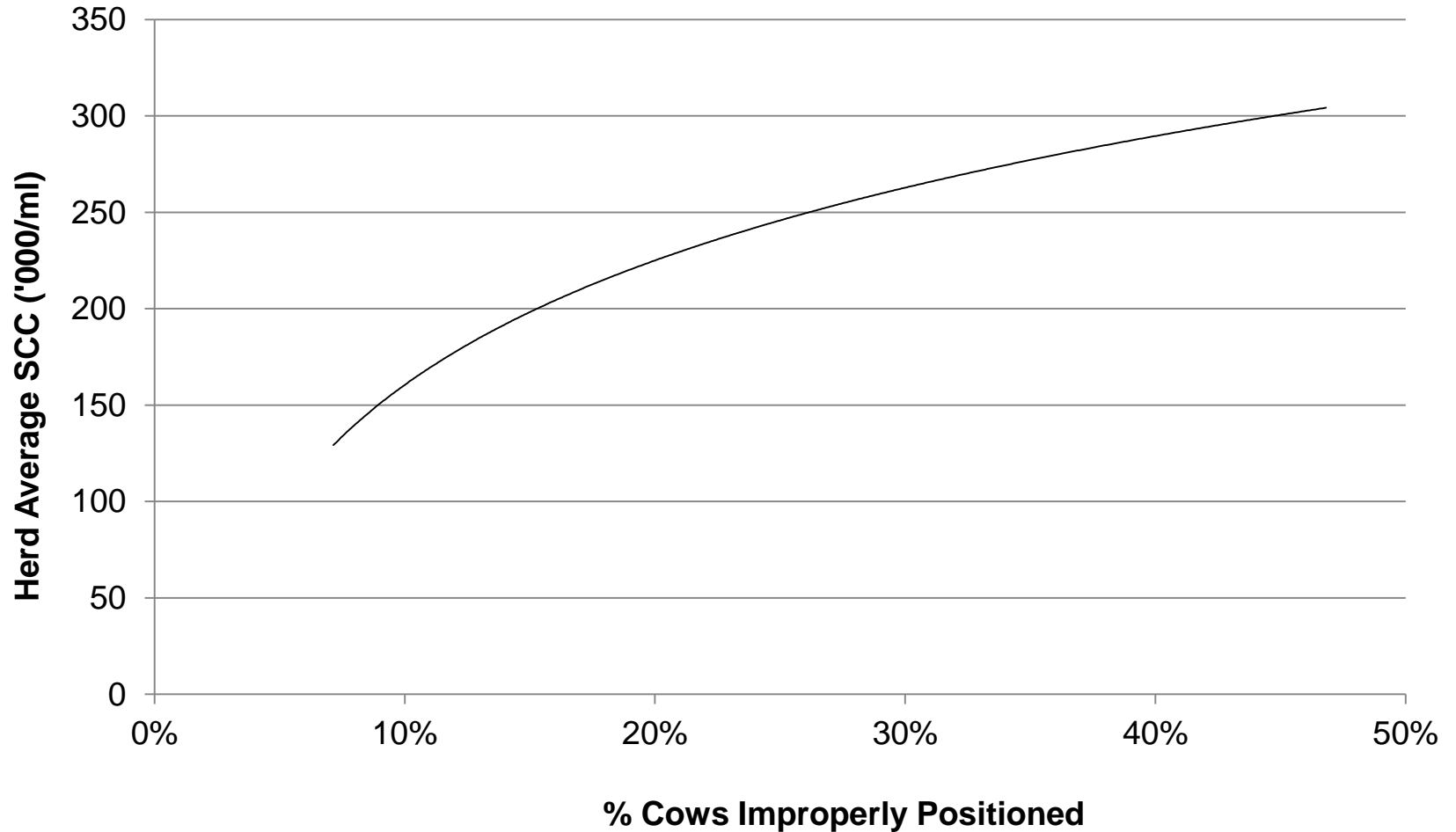


“Butt Test or Bum Test”



Butt Test vs. SCC

Relationship Between Cow Position and Herd Average SCC



Probe the Beds



Bedding Cultures

- Bacteria and organic load
- Lab used is critical
- New bedding
- Stall bedding prior to new bedding



Proper Loop Design

The Key Fact:

Must assure that the
cow's lie straight in
the stalls



Cow Comfort

Neck Rail Location

Stops Cow From Going
TOO far into stall

Encourages her to lie down



Free Stall Maintenance



MODIFIED RAKE/SCRAPER MAKES IT EASIER!





Cross Over Alleys Major Cause Of Dirty Cows



Modified Rake



MODIFIED RAKE/SCRAPER MAKES IT EASIER!



Heavy Bristle Broom



Best for Mattress Stalls





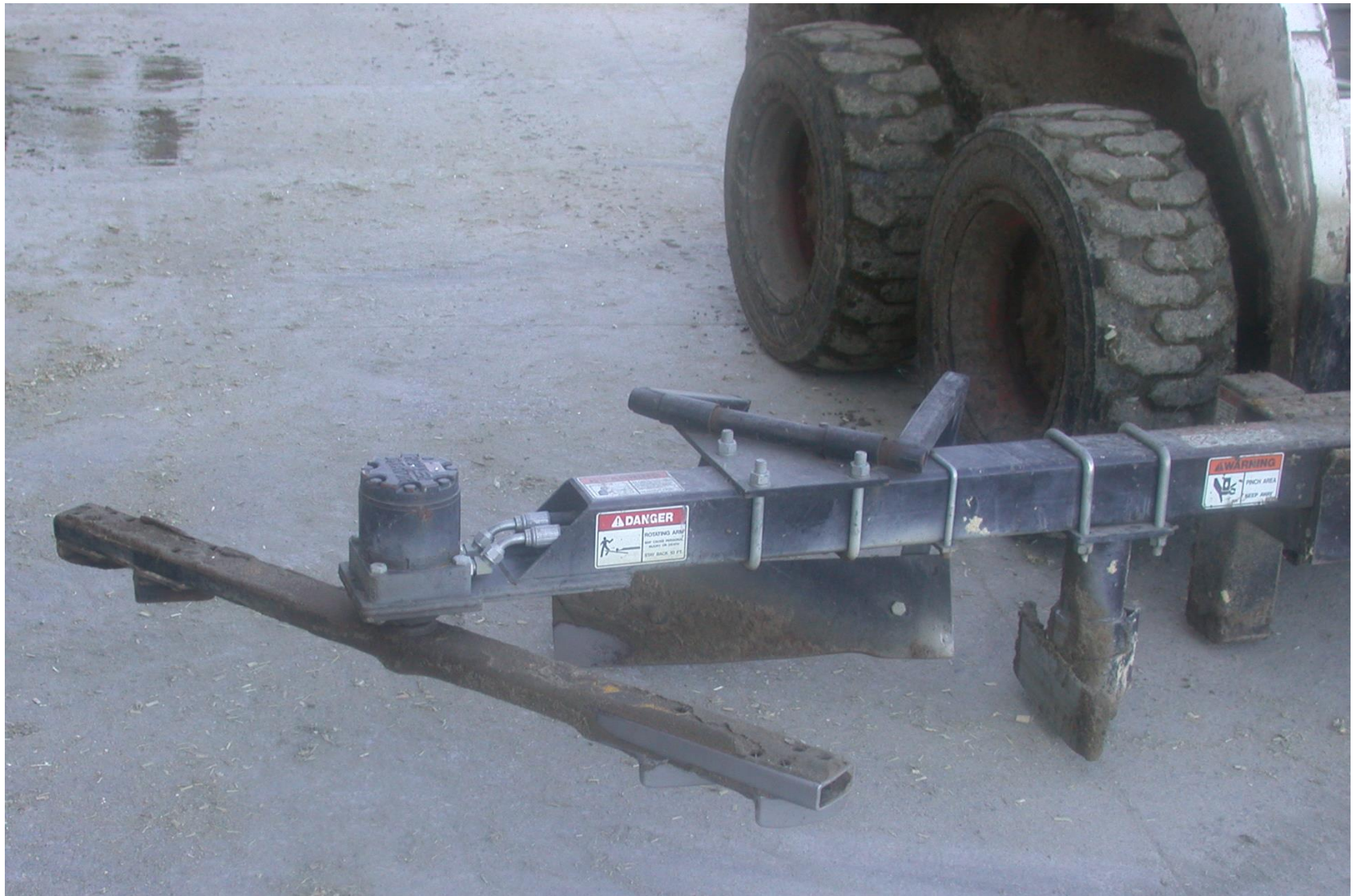
Grooming Stalls

**Mechanical Grooming
Needed for sand and bio-solid
Stalls to keep dry and comfortable**

**Minimum 1X day while some
dairies groom 3X a day**

**Sandman groomer works great
Brush for mattress herds**







Free Stall Grooming



Mechanical methods



Free Stall Leveling



Mechanical methods



Free Stall Leveling



Mechanical methods



Free Stall Deep Digging



Tails Still Bad



Can't be in milkers face and expect them to do a good job!
Cows are dirtier with long switches



Tails Switch Trimming



- Battery operated clipper
- Cutco Scissors

Cows are cleaner and there are less flies in summer
Trim at day of calving and 5 months later



Udder Hair Matters



Flame day of calving and then every other month
Key source of Strep species mastitis
Critical in robot herds for attachment



Contagious Bacteria

Strep ag Controlled

Staph aureus Controlled

Mycoplasma Mostly controlled

Prototheca Newest Monster



Contagious Bacteria

Prototheca

- Very Contagious
- Causes high bulk tank SCC
- No treatment cull or isolate
- Algae
- Common in clinicals
- Common in fresh animals
- Shed on and off



Contagious Bacteria

Prototheca

- Bulk tank culture excellent way to monitor
- Colony count the key <10
- When increases rapidly >10 need to find the positive cows
- Culture high SCC, any cow with clinical last 30 days, all fresh animals last 30 days



Contagious Bacteria

Prototheca

- Do not know the “trigger”
- Weather, stress event, high fresh cow numbers
- Takes huge commitment to solve
- Can be eliminated if willing to do all the necessary steps



Contagious Bacteria

Prototheca

- Eliminating the positive cows
 - Culture and sell or isolate
 - Do not move animals during culture process
 - Culture all cows in and out of the hospital
 - Culture all fresh animals



Environmental Bacteria

Strep species Number 1 issue
(Strep species equals feces)

E. Coli hot nasty mastitis
(water and manure source)

Klebsiella Bedding, manure



Environmental Bacteria

Bulk tank culture will give you the best picture of what the cows are being exposed to and may be infected with

High Strep species means milking dirty teats



Milking Protocol

- 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



Rutina de Ordeño / Milking Routine

Sala Doble 20 – Grupos de DIEZ (10) vacas /
Parlor Double 20 – Groups of TEN (10) cows



1. Limpiado con toalla seca y Pre-Sellado 1. Dry wipe & Pre-Dipping

Regrese a la vaca 1 / Go back to cow 1

2. Despunte y secado 2. Fore-stripping and wiping

Regrese a la vaca 1 / Go back to cow 1

3. Colocar la unidad y alinear 3. Attach and align unit

Regrese a la vaca 1 / Go back to cow 1

4. Post- Sellado 4. Post-dipping

Notas / Notes:

- ✓ La preparación debe comenzar cuando el ordeñador tiene las primeras tres de sus diez vacas en su lugar / Milking prep should begin when a milker has the first three of his ten cows in place
- ✓ Enjuagar con el aspersor de la plataforma después de terminar de ordeñar cada lado / Deck flush after each line
- ✓ Lavar la plataforma con la manguera a presión después de cada corral / Pressure hose platform after each pen
- ✓ Enjuagar las unidades con la manguera "medicada" cuando estén sucias / Rinse off units with drop hose when dirty

GRANDE

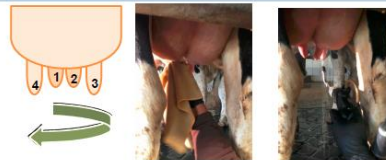
6/30/2013

White Gold Dairy

1. Limpiado con toalla seca y Pre-Sellado 1. Dry wipe & Pre-Dipping

Purpose: Dry wipe to remove any loose dirt and reduce the organic load to make pre-dip more effective. Pre-dip to clean and disinfect teat surface and eliminate bacteria present before attaching the unit.

Propósito: Limpiar con toalla seca para remover la suciedad, y reducir la carga orgánica para hacer el pre-sello mas efectivo. Pre-sellar para limpiar y desinfectar la superficie del pezón y eliminar las bacterias presentes antes de colocar la unidad.



- ✓ Always start with the left front teat and continue clockwise
- ✓ Dry wipe each teat starting at the base of the udder with a clean towel and doing a downward twist (use one towel per 10 cows)
- ✓ Spray each teat. Make sure each teat is completely covered
- ✓ Pre-dip contact time should be at least 30 seconds
- ✓ Siempre comience con el pezón delantero izquierdo y continúe en el sentido de las manecillas del reloj
- ✓ Limpie cada pezón con una toalla limpia y seca desde la base de la ubre haciendo un movimiento circular (una toalla por cada 10 vacas)
- ✓ Aplique el spray en cada pezón. Asegúrese de que cada pezón esté completamente cubierto
- ✓ El tiempo de contacto del sellador debe ser al menos de 30 segundos

GRANDE

6/30/2013

White Gold Dairy

3. Colocar la unidad y alinear 3. Attach and align unit

Purpose: Milking unit should be attached to a clean, dry and well stimulated teats to remove milk from the udder. Units should be aligned to have an even and complete milking

Propósito: La unidad se debe colocar en pezones limpios, secos y bien estimulados para remover la leche de la ubre. La unidad debe estar bien alineada para permitir un ordeño parejo y completo



Use support / Utilice el soporte. Correct / Correcto. Incorrect (pushed forward) / Incorrecto (hacia adelante)

- ✓ When attaching the unit, bend inflation to avoid air entering
- ✓ Use hose support and align unit
- ✓ Be careful not to touch dirty legs or floor with the inflations to avoid contamination
- ✓ Make sure unit hangs squared under the udder
- ✓ Al colocar la unidad doble las pezoneras para evitar la entrada de aire
- ✓ Use el soporte de la manguera y alinee la unidad
- ✓ Tenga cuidado de no tocar las piernas sucias de las vacas o el piso con las pezoneras para evitar contaminación
- ✓ Asegúrese que la unidad cuelgue centrada bajo la ubre

GRANDE

6/30/2013

White Gold Dairy

2. Despunte y secado 2. Fore-stripping and wiping

Purpose: Fore-stripping is done to identify clinical mastitis, to stimulate milk letdown and to remove first milk that is high in SCC and bacteria. Teats are wiped to remove pre-dip and dirt before attaching the unit.

Propósito: El despunte se hace para identificar mastitis clínica, estimular la bajada de la leche y remover la primera leche que es alta en células somáticas y bacteria. Limpiar los pezones para quitar el pre-sello y la suciedad antes de poner las unidades.



- ✓ Always start with the left front teat and continue clockwise
- ✓ Strip five (5) squirts of milk from each teat. Always observe the milk, paying attention for abnormal milk (mastitis).
- ✓ Do not milk cows with abnormal milk in the line, mark cow, move to hospital pen and write down cow number on dry erase board.
- ✓ When wiping, starting at the base of the udder, do a downward twist of each teat with the towel, then flip the towel and rub the teat ends
- ✓ Siempre comience con el pezón delantero izquierdo y continúe en el sentido de las manecillas del reloj
- ✓ Despunte cinco (5) chorros de leche por pezón. Siempre observe la leche, ponga atención a la presencia de leche anormal (mastitis).
- ✓ No ordeñe vacas con leche anormal en la línea, marque la vaca, muevala al hospital y escriba el número en el tablero.
- ✓ Para secar, gire la toalla con movimientos circulares desde la base del pezón (no la tire hacia abajo), voltee la toalla y frote las puntas de todos los pezones.

GRANDE

6/30/2013

White Gold Dairy

4. Post- Sellado 4. Post-dipping

Purpose: The teat opening stays open after milking, also the teats are bathed in milk during the milking process. Post dipping removes milk film and kills the bacteria present on the teat skin for mastitis prevention.

Propósito: El orificio del pezón se mantiene abierto después del ordeño, además los pezones son bañados en leche durante el proceso de ordeño. El post-sellado remueve la capa de leche que queda en el pezón después del ordeño y mata las bacterias presentes para prevenir la mastitis.



- ✓ Post dip all teats
- ✓ Make sure coverage is complete
- ✓ Keep dip cups clean

- ✓ Sumerja todos los pezones en el sellador
- ✓ Asegúrese que la cobertura sea completa
- ✓ Mantenga las copas limpias

GRANDE

7/09/2013

Spring Grove Dairy

Best Milking Routine

What I recommend

- Step 1: Dry wipe and Predip
 - Step 2: Strip and dry
 - Step 3: Attach and Align
-
- Highest flow rates, fastest milking, and best milk quality
 - Big parlors getting 5 to 6.5 turns with this routine



Biggest Challenge for Success

To know the difference
between
normal and abnormal.

This is where your veterinarian is so important



Poor Advice

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



Proper Lag Time

The single biggest factor
to rapid and complete milk outs.

GOAL = 90+ SECONDS

(Fore Strip to Unit Attachment)



Proper Lag Time

Goal: 90-180 seconds

Research shows up to 5
minutes without negative issues



Over Milking

Greater than 75% of
all over milking occurs
at the beginning of milking

NOT THE END OF MILKING!!



Proper Predip and Post Dip

Fast kill on predip

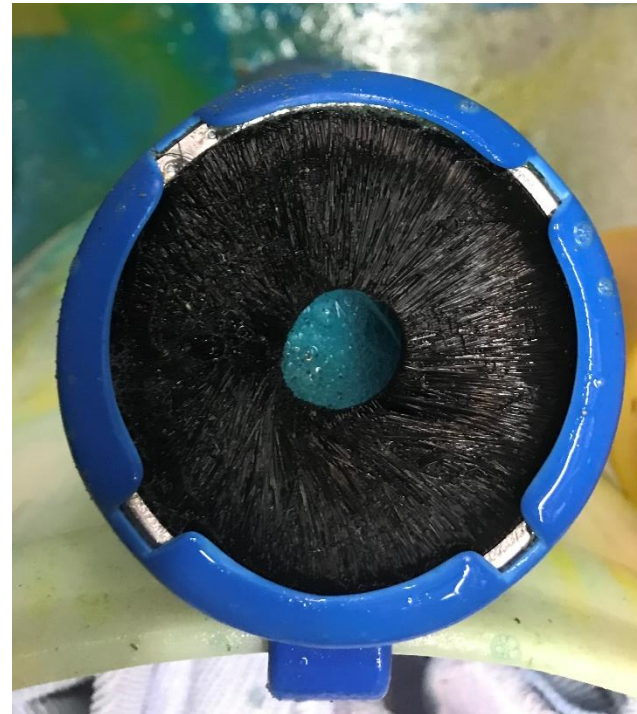
Long protection Post Dip

Pick products that fit your bacteria
On your dairy Gram + vs. Gram -



Proper Predip and Post Dip

Coverage still the secret



Proper Predip and Post Dip

Proper Storage Critical

Proper mixing

Proper age



Proper Predip and Post Dip

Proper Storage Critical



Proper Predip and Post Dip

Proper Mixing Critical



Proper Predip and Post Dip

Age after mixing Critical

**Many dips maximum life of 24-48
hours then kill decreases**



Keep Gloves Clean

**Dirty hands are common
source of bacteria on teats**

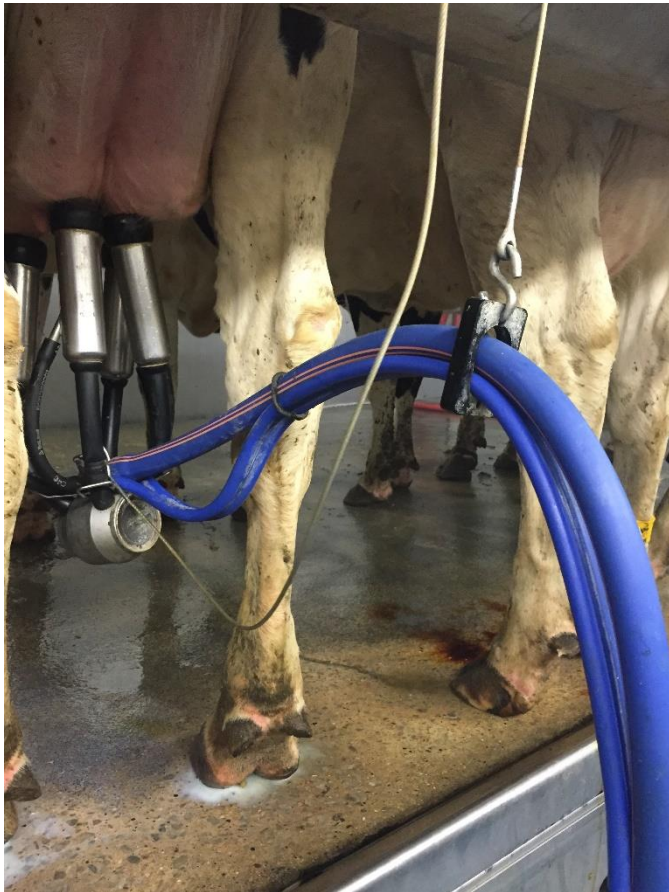
Gloves are important but
Keeping clean more important





Feces equals Strep species

Unit Alignment Still Critical to milk outs and liner slips



Never want lift



Twist equals uneven milkout

Monitor the Results of Good Udder Prep





Might be some issues with teat cleaning??

Dirty Filters Affect Plate Counts

EVALUATION OF MILK FILTERS

Filter#	M	T	W	Th	F	S	S
1	1	1	1	1	3	3	2
2	1	2	3	1	3	1	2
3	2	1	2	1	2	2	2
4	3	2	3	1	3	3	3

Filter#	M	T	W	Th	F	S	S
1	2	2	3	3	1	1	1
2	1	1	2	3	2	1	3
3	1	2	1	1	3	1	2
4	1	2	2	2	3	1	3

Filter#	M	T	W	Th	F	S	S
1	1	1	2				
2	1	1	1				
3	1	1	1				
4	1	1	1				

Oct-18

Filter#	M	T	W	Th	F	S	S
1	2	1	1	1	2	3	1
2	2	3	1	1	1	3	2
3	1	2	1	1	1	3	3
4	2	3	2	1	1	3	3

Filter#	M	T	W	Th	F	S	S
1	1	1	2	2	2	1	1
2	1	2	1	2	1	1	1
3	1	1	1	1	1	1	1
4	1	1	1	1	3	2	1

1 Clean

2 Slight dirty

3 Very dirty



Keep Units Clean During Milking

- Use drop hose with detergent/sanitizer
- At minimum after each pen of cows
- Use like manual back flush
 - After High SCC Animal
 - After Animal with Abnormal Milk
 - Known contagious cow
 - After Animal that has been treated





Strep species equals feces!!



Dirty Inflations



Dirty Inflatons



Units on floor before they retract – a common cause



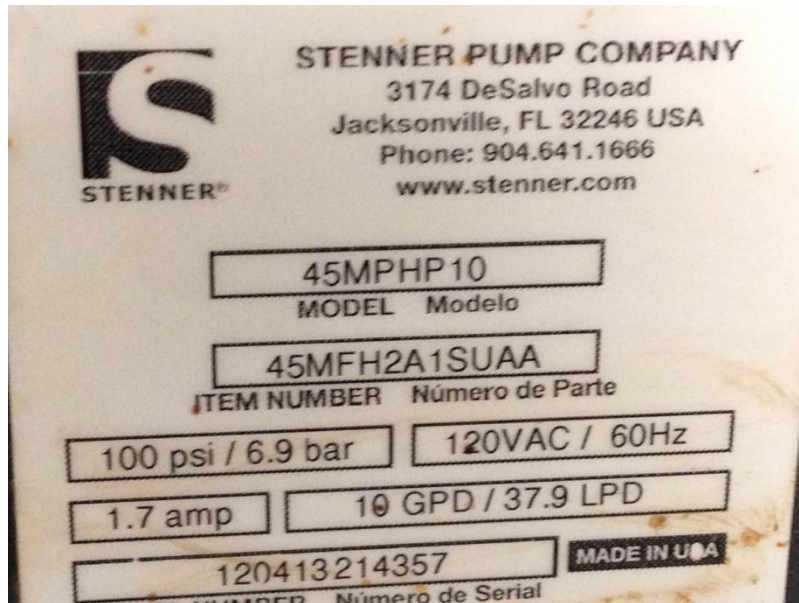
Dirty Inflations



Dirty Inflation



Keep Exterior Of Units Clean



Stenner Pump System



Keep Exterior Of Units Clean



Drop hoses should show suds
Significant drop in clinical cases
Effective Manual Backflush



Manual Backflush Made Easy



MILKING EQUIPMENT

The Most Important Machine On The Dairy Farm

The most used and abused
machine on the dairy farm.

Milk time evaluation is a must!



The Milking Machine

Milk Path is most important

Non-restricted flow critical

No lift wanted in flow

**Rubber goods: Condition and
milk hose length**



Milk Hose Length

- There are very few milking systems of any type that cannot benefit from shortening milk hoses.
- Does not have any negative impact and allows for faster milking.

Milk Hose



Milk Hose



Milk Hose



Milk Hose Fixes



Subway Parlors



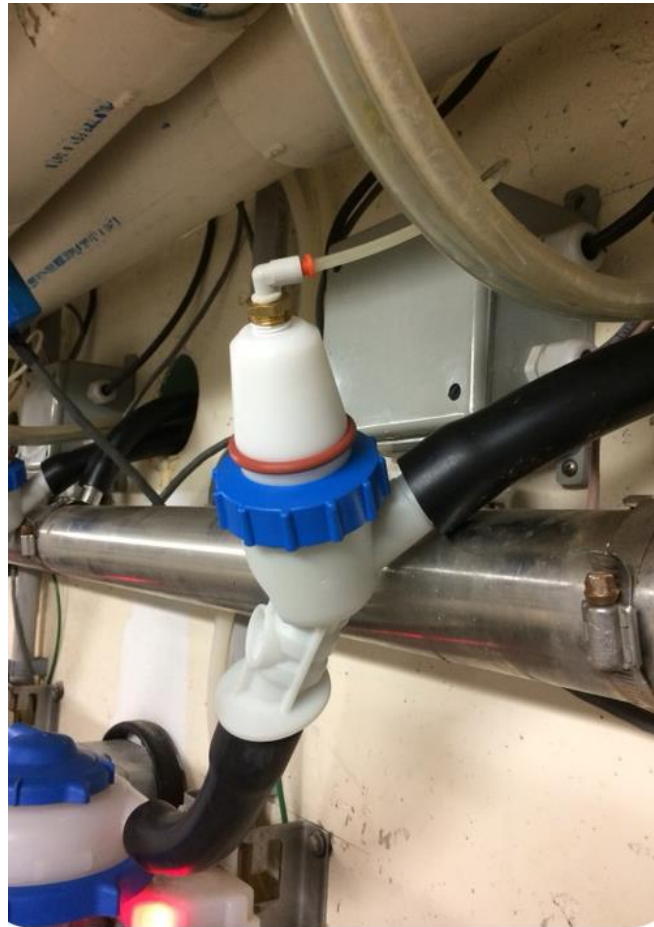
Old Shut Off Devices



Pinch valves are old technology



Flow Shut Offs



Less machine on time
Timely gasket change critical



Pulsator Hoses



Dynamic Testing

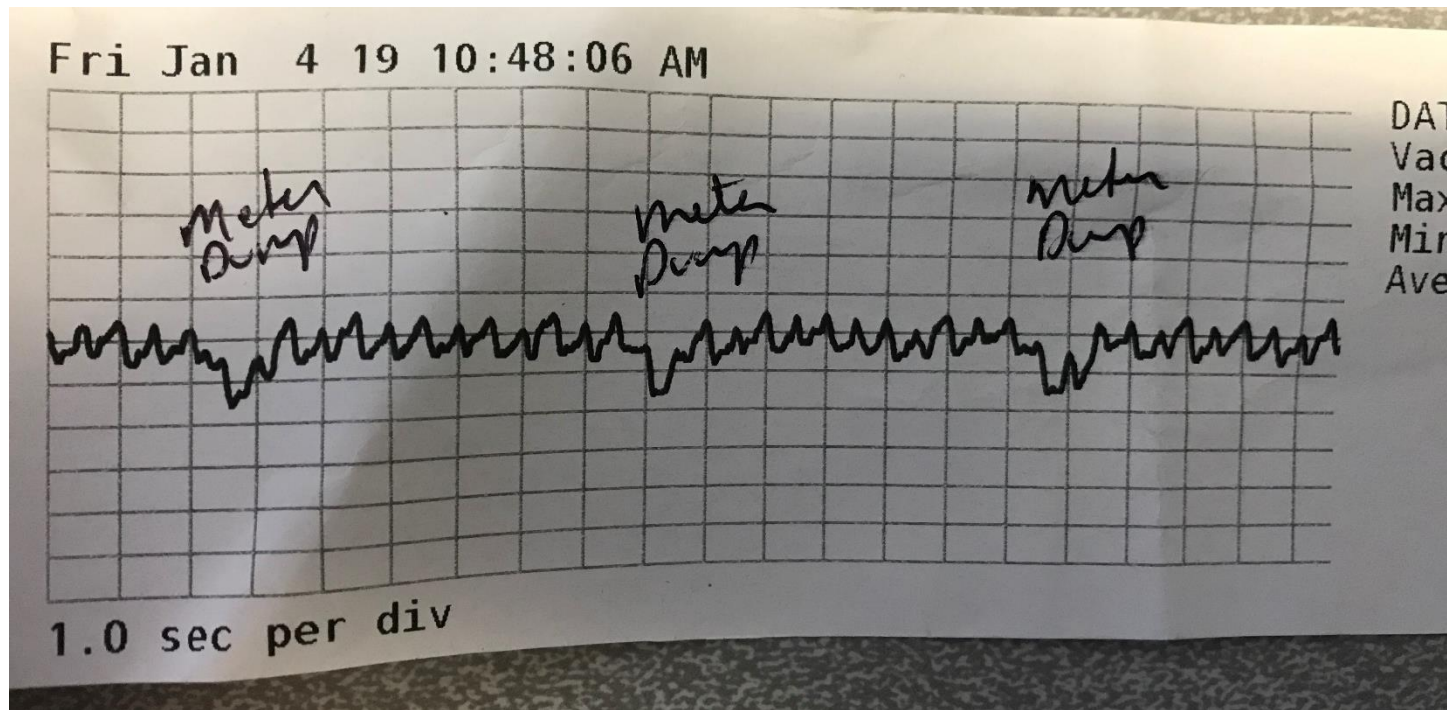
The only acceptable way to test a milking system is while the cows are actually milking.

All other vacuum readings are just guesses or estimations



Dynamic Testing

Only way to find real issues



Vacuum Level

The vacuum level of the
milking system is not
important!

The vacuum level in the claw
while the cow is milking
is critical!



Vacuum Level

Must be able to monitor



Not an issue until change greater 0.2 inches



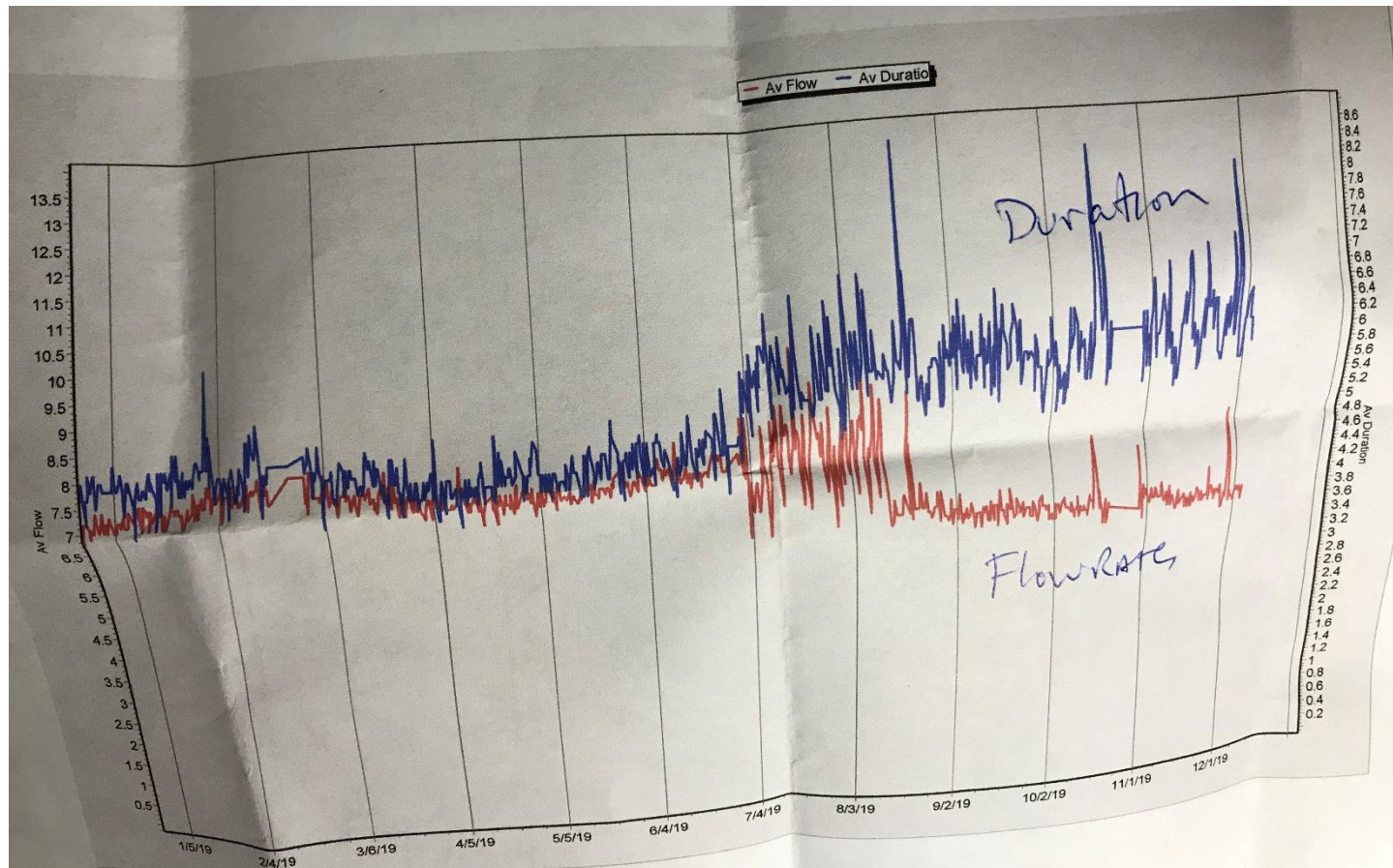
Vacuum Level

**Most dairies do not monitor
vacuum level each milking**

**Have no idea what the
vacuum level really is and a
very common problem is
vacuum is much different
than normal which leads to
serious issues**



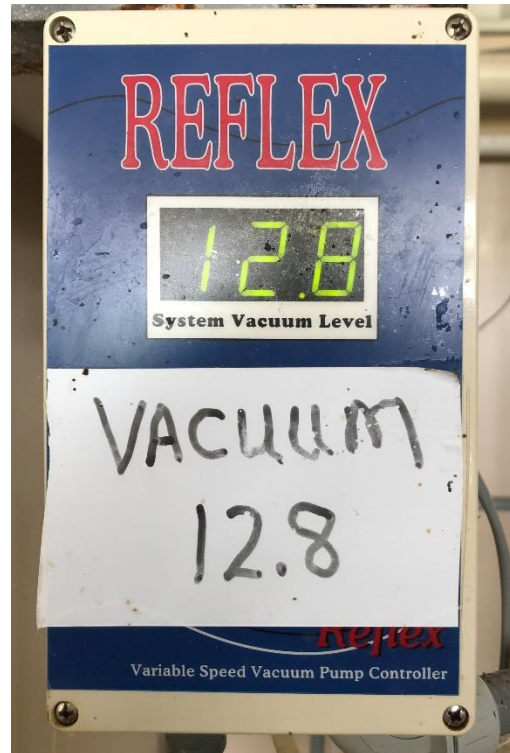
Vacuum Level



**Dairy complains milking slowed down and records showed
He was correct even though monthly testing by dealer
Was supposed to be 13.4 Actually tested at 12.8 inches**



Vacuum Level



Dairies are shocked when vacuum change is the issue



Vacuum Level

Vacuum Rea
MONTH: 3

Registro del nivel de vacio

Mes	Turno # 1 Nivel del vacio	Turno # 2 Nivel del vacio	Turno # 3 Nivel del vacio
1/1/2020	13.6	X	13.6
1/2/2020	13.6	X	13.6
1/3/2020	13.6	X	13.6
1/4/2020	13.6	13.6	13.6
1/5/2020	13.6	13.6	13.6
1/6/2020	13.6	13.6	13.6
1/7/2020	13.6	13.6	13.6
1/8/2020	13.6	13.6	13.6
1/9/2020	13.6	13.6	13.6
1/10/2020	13.6	13.6	13.6
1/11/2020	13.6	13.6	13.6
1/12/2020	13.6	13.6	13.6
1/13/2020	13.6	13.6	13.6
1/14/2020	13.6	13.6	13.6
1/15/2020	13.6	13.6	13.6
1/16/2020	13.6	13.6	13.6
1/17/2020	13.6	13.6	13.6
1/18/2020	13.6	13.6	13.6
1/19/2020	13.6	13.6	13.6
1/20/2020	13.6	13.6	13.6
1/21/2020			
1/22/2020			
1/23/2020			
1/24/2020			
1/25/2020			
1/26/2020			
1/27/2020			
1/28/2020			
1/29/2020			
1/30/2020			
1/31/2020			

January 2020

Dairies do monitor and seems boring until a change occurs



Dynamic Testing

If the milking system has not
been tested while it is milking
COWS,

IT HAS NOT

been properly tested!



Proper Claw Vacuum

**Whatever Line Vacuum it Takes
to Provide 11.5-12.5 inches at
the Claw During Peak Flow**

**The Closer to 12-12.5 inches the
better!**



Liner

The real key is do you have the right vacuum and pulsation for the liner you are using?

Not all liners are the same and all have their own needs



Liner Performance Mapping

Colors indicate teat end congestion						Low	Med	High
Claw Vacuum		b-phase (ms)						
Kpa	"Hg	300	350	400	450	500	550	600
34	10.0	65%	70%	74%	77%	80%	81%	81%
36	10.5	68%	73%	77%	80%	81%	82%	82%
37	11.0	71%	75%	79%	82%	84%	84%	84%
39	11.5	74%	78%	82%	84%	86%	86%	86%
41	12.0	77%	82%	85%	87%	88%	88%	88%
42	12.5	81%	85%	88%	90%	91%	91%	90%
44	13.0	85%	89%	91%	93%	94%	93%	92%
46	13.5	89%	93%	95%	96%	97%	96%	94%
47	14.0	93%	97%	99%	100%	100%	99%	97%
High/small teats		numbers indicate % of maximum average flow rate						

Pulsation

B phase should be 485-550
milliseconds

D phase should be greater than
220 milliseconds

LOADED



Pulsation

Difference between loaded and
Unloaded inflations can be
20-50 milliseconds

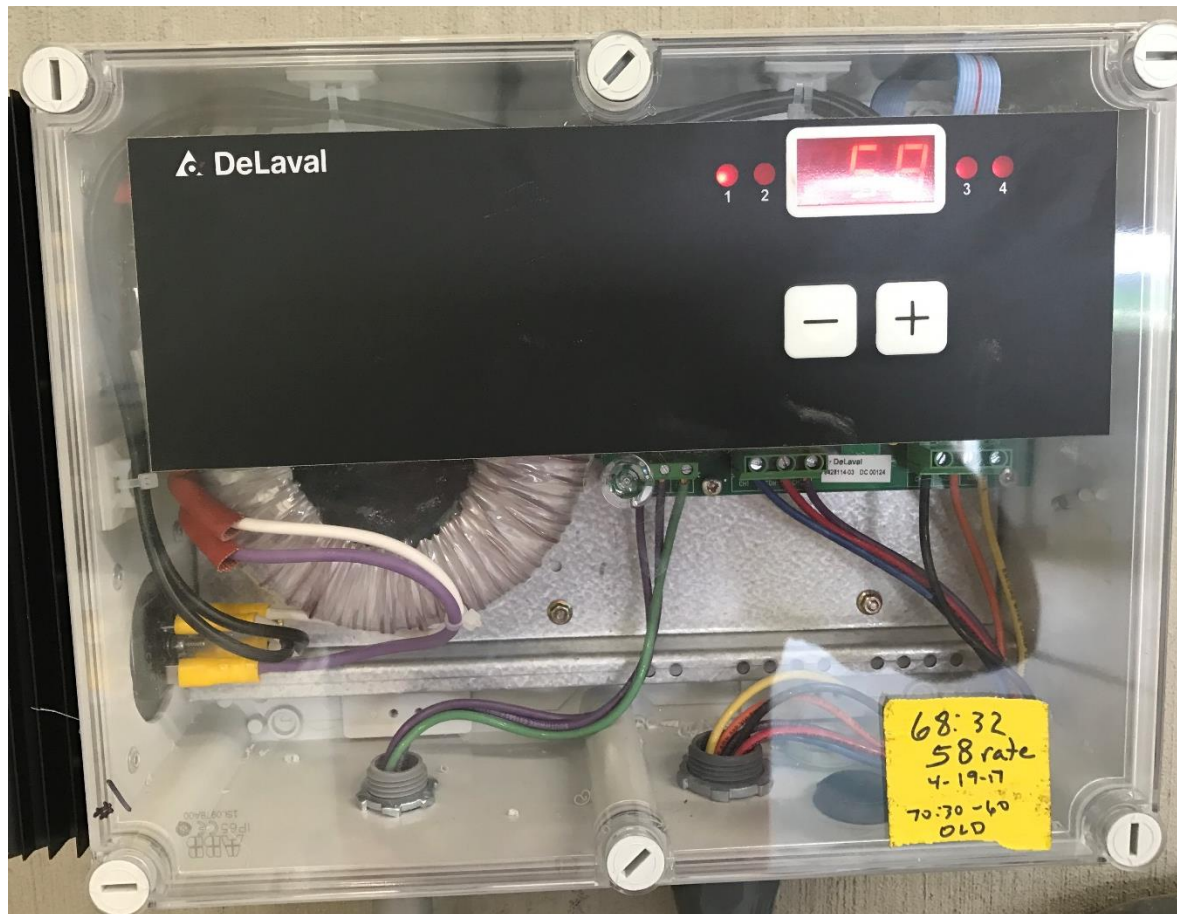
Must set pulsation ratio and
rate to achieve correct
B and D phases

Depends on liners too



Pulsation

New controllers allow lot of adjustment to rate and ratio



Pulsation

Decrease pulsator failure with
proper sand filters



Not all fuel filters created equal



Pulsation

Proper filters for pulsators

- GEA
- Baldwin Fuel Filter BF-7736
- WIX Fuel Filter 33002
- Test pulsator D phase with and without to check for air restriction



Automation

Not just about quality milk
But efficient milking

- Milk cows fast
- Milk cows completely
- Milk cows gently



Automation

Not just about quality milk
But efficient milking

- Healthy teat ends
- More pounds milk per stall per hour
- Herds getting 35 to 40 pounds per cow per milking in less than 4 minutes



Automation

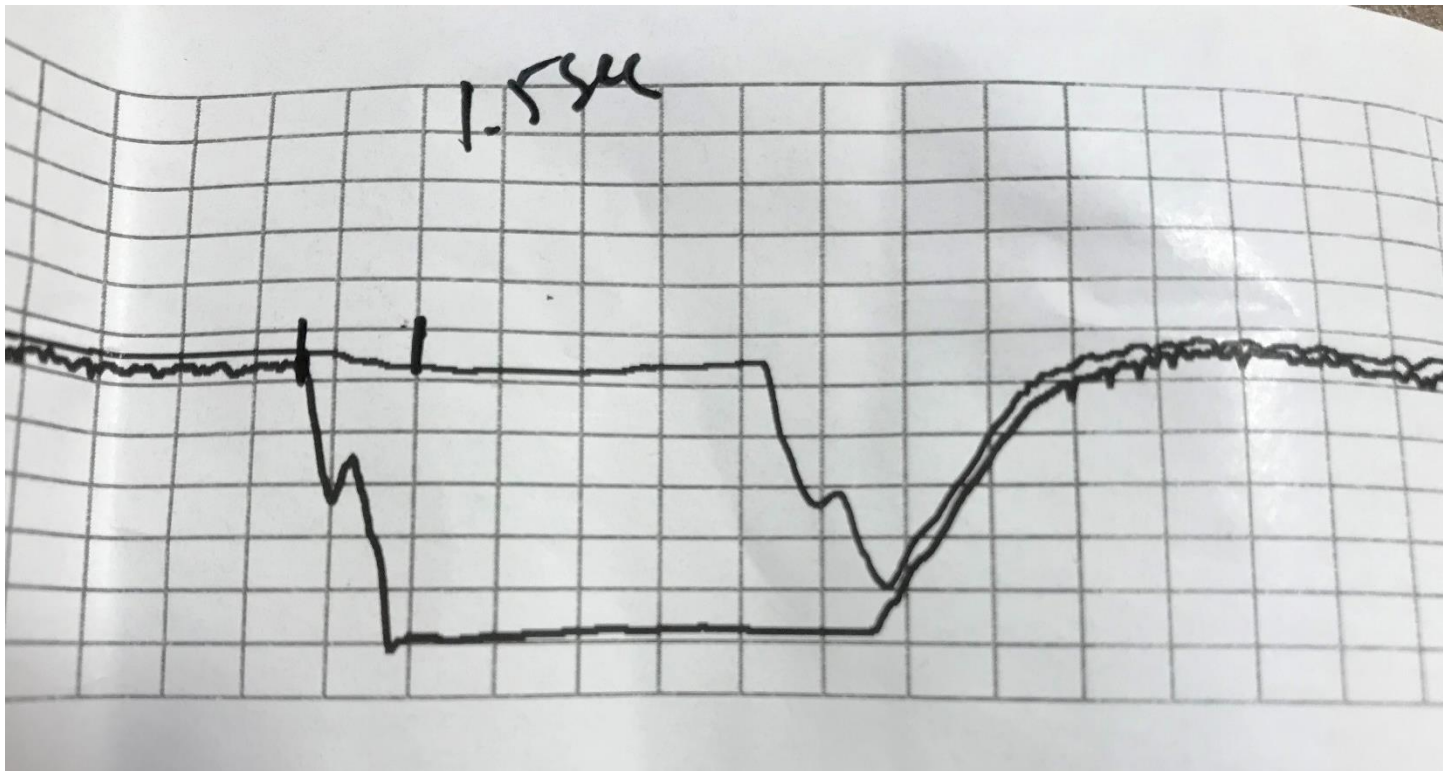
Pounds of milk per stall
Per hour critical

- One of three most important factors to a dairies' profitability
- Used to be 100 pounds/stall/hour
- Now dairies hitting 175 to 240 pounds per stall per hour



System Cleaning

LPC, SPC, Coliforms



Slug analysis still most forgotten



Days End

Sit down and enjoy a good cigar



Days End

OR Go fishing with a friend



Days End

OR Go for a Harley ride



Days End

OR my wife's idea

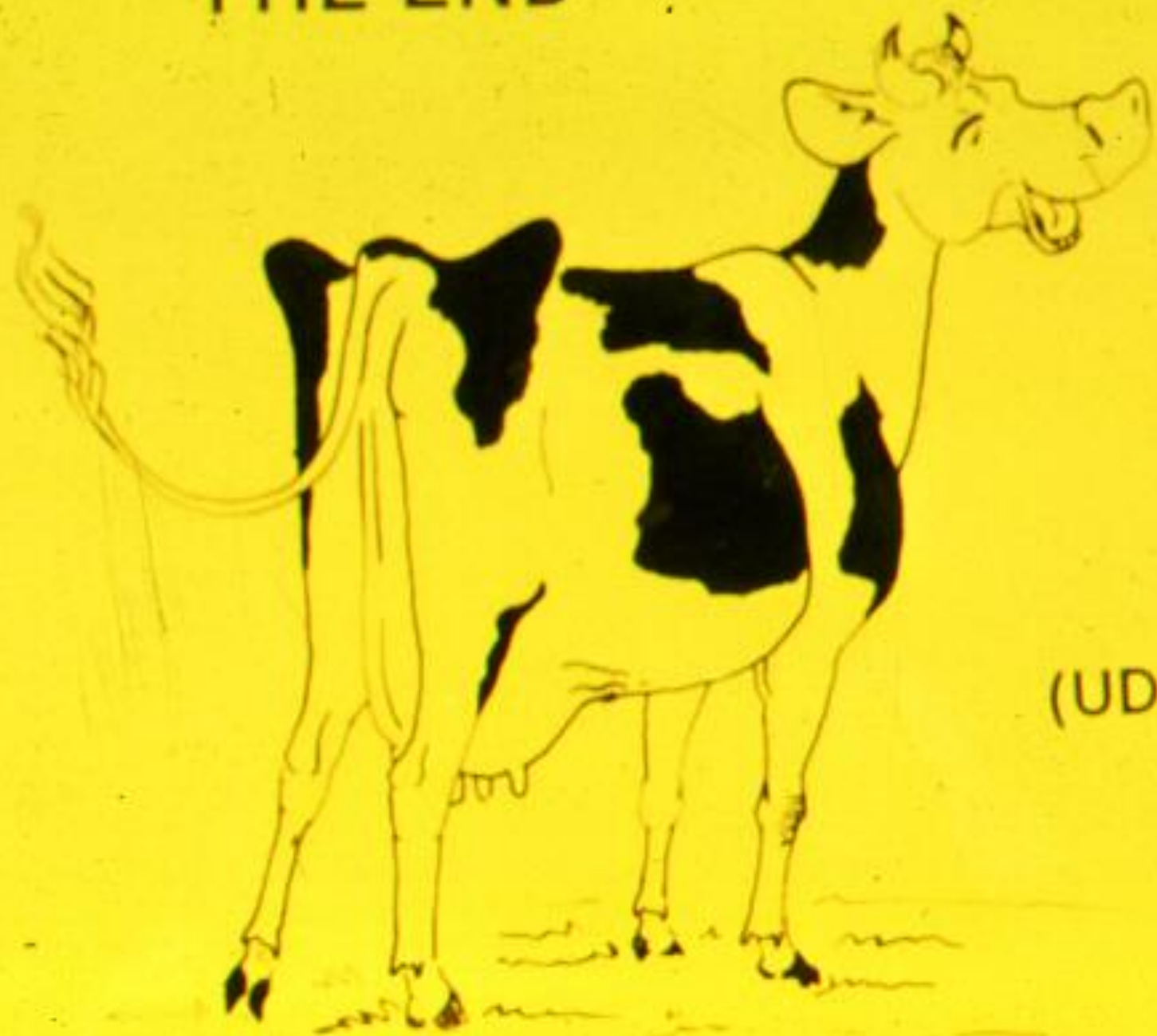


MOTTO FOR SUCCESS

“Whenever you lose interest
in being better at something,
chances are you have
already stopped being good
at it!”



THE END



(UDDERLY)

QUESTIONS

