Enhancing Parlor Efficiency

Georgia Dairy Conference
Savannah Georgia

The Dairy Industry Is Changing Rapidly

You Need to Change to Stay Competitive

Improving Parlor Performance
Four Main Factors

Milking Routine

Vacuum Setting

Automatic Take Off Settings

Pulsator Settings

Parlor Loading

Improving Milking Performance

Most dairies have interest here

Huge impact on each dairy

Improves milk quality too

Improving Milking Performance

Not all dairies want this because parlor is their place for social interaction each and every day

Parlor Performance

- Cows Per Hour
- Turns Per Hour
- Pounds Per Hour

These are all dependent on the people and their milking routine!

Parlor Performance

- Pounds Per Hour

One of the three biggest impacts on a dairies profitability

Do you know other two?

Three Factors that Influence a Dairy's Profitability

1. **Pounds of milk per stall per hour**
2. **Pregnancy Rate**
3. **Early culling**

Parlor Efficiency

Milking more cows in the same parlor with the same people is how to make a lot more money

What is value of milking 1 more side per hour in a parlor?

Parlor Efficiency

Double 20 parlor

One more side per hour

20 more cows X 7 hours

140 more cows milked per day

140 x 80 pounds x 0.17

$1,900 per day

$695,000 per year

Parlor Efficiency

Realistic goals

3.5 to 6 turns per hour

Full prep, 90 plus pounds milk

5.5 turns per hour

Milk Out Times

Faster the Better!

25 Pounds (11.3kg)/Milking

Milk Out 4.0 Minutes or Less

Add 0.5 Minute per

additional 10 Pounds (4.5 kg)/milking

Milk Out Times

Faster the Better!

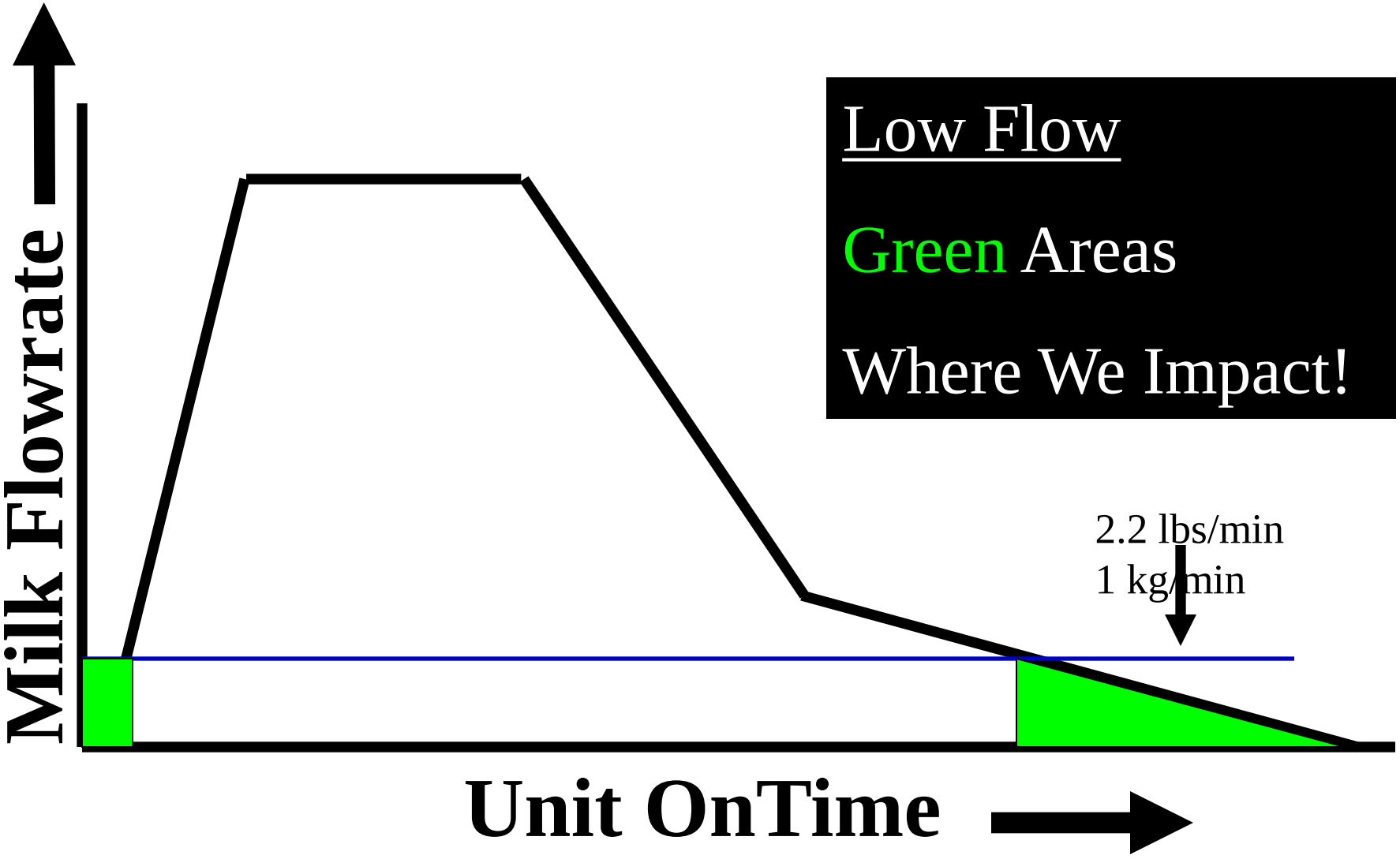
Best dairy averaging over 100 pounds

Per cow per day

Average duration for entire herd is

3.8 minutes

Individual Cow Milk Flow Pattern



"F S K"

- Flinching
- Stepping
- Kicking

Over Milking Causes Pain To The Cows!

Shit Sleeve Index

Much Easier To Understand

The Machine

Common signs of milking cows too dry is excess stepping and kicking, abnormal teat ends, and sore teats to the touch. Are these familiar problems at your client's operations?


24/10/96
RJ

Teat End Health

The Secret to Success:
STOP OVER MILKING!!

Minimize the time the cow's teat is in high vacuum low flow.

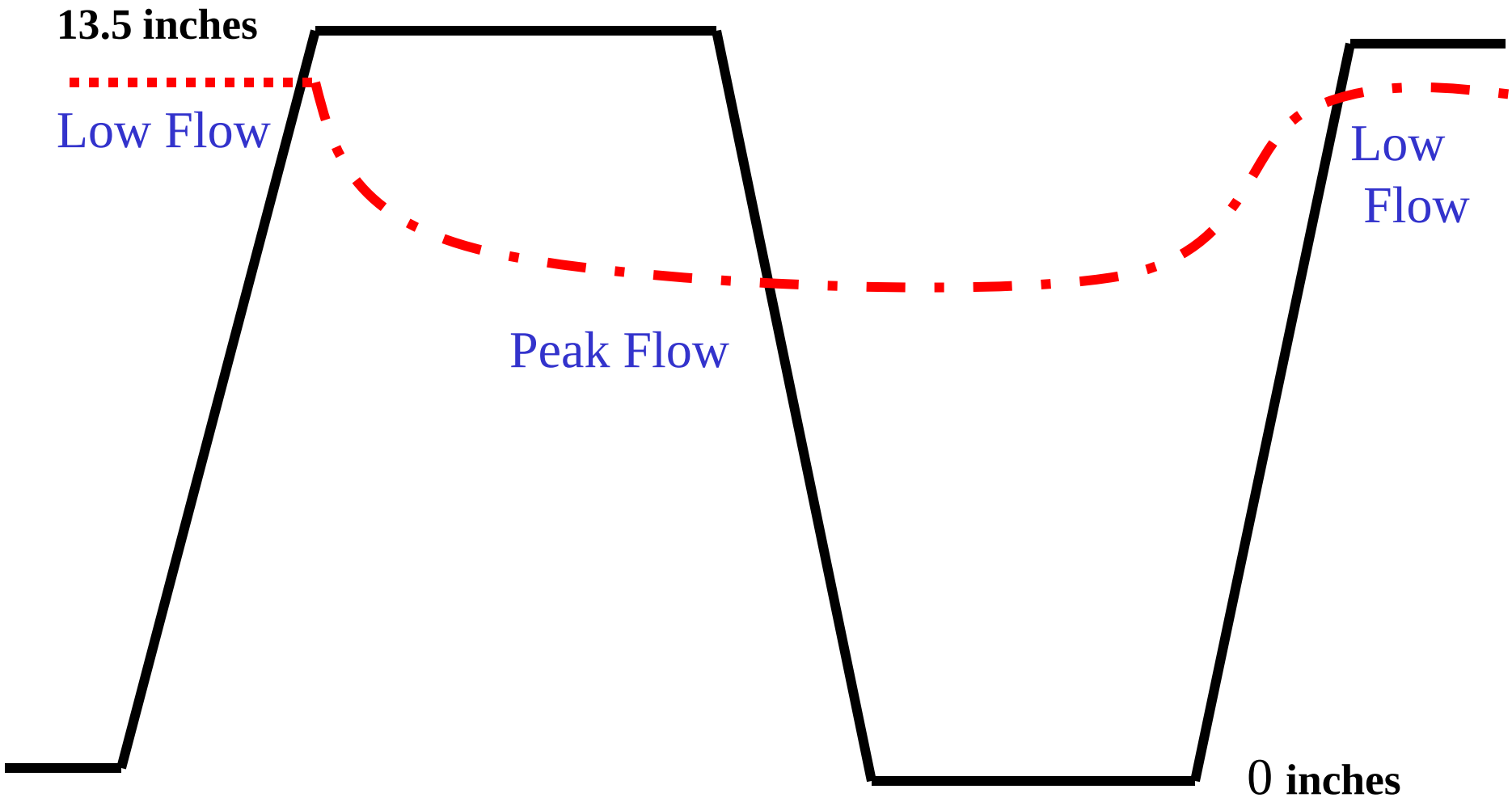
At start and at end of milking

Teat End Health

The Secret to Success:
STOP OVER MILKING!!

Over 75% of all over milking is at the beginning of milking NOT the end

NORMAL MILK FLOW



Milking Performance

Three Areas to Concentrate

1. Milking Routine

2. Average Claw Vacuum at Peak Milk Flow

3. ATO Settings

Milking Performance

Milking Routine

1. Consistency
2. Proper lag time
3. Physical Contact to teats

Proper 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!

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

Proper Lag Time

Goal: 90-180 seconds

Research shows up to 5 minutes without negative issues

Fore-Stripping

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

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.

Drying Teats

- Two downward firm twists per teat
- Flip towel and one downward twist plus rub across teat end
- This can be managed, time cannot

Clean Teat End

Teat Cleanliness Scoring System

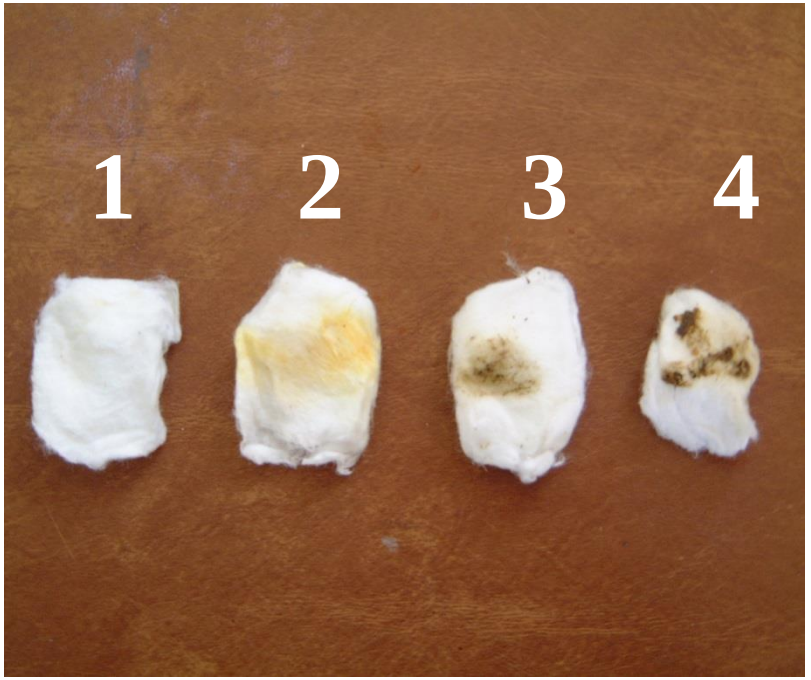
Scoring System

1 No visible dirt or dip

2 Visible dip stain

3 Small amount of dirt or manure

4 Large amount of dirt or manure



Milking Management

Teat Scrubbers

Clean Towels

Improper Teat Drying

What About The Teat End??

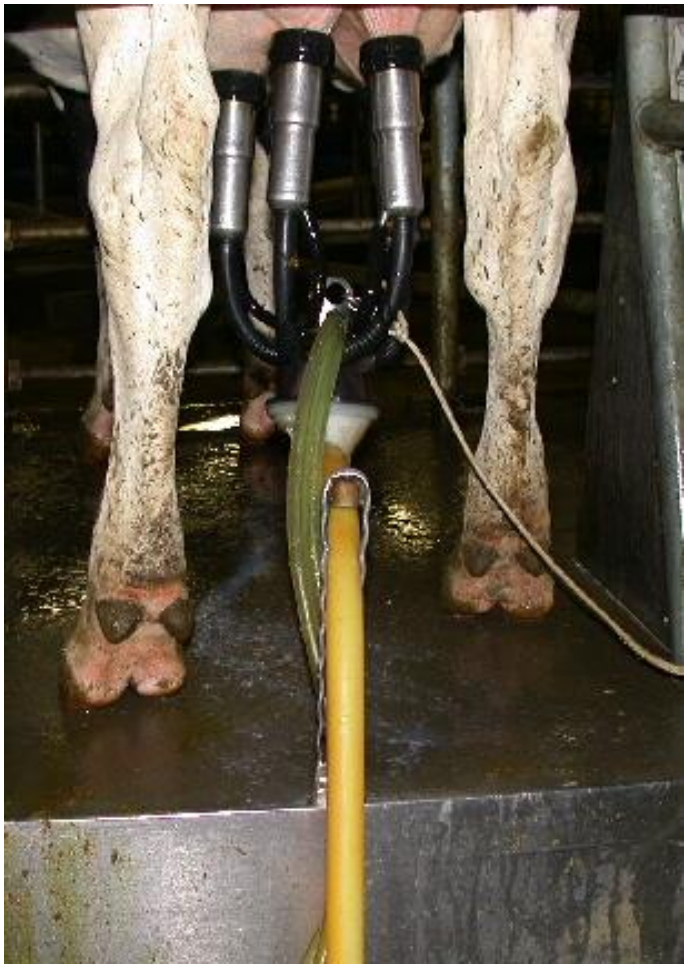
Proper Teat Drying

Twist Method Gets The Teat End Clean!!

PROPERLY STIMULATED COWS

* Teats plump with milk when attach units

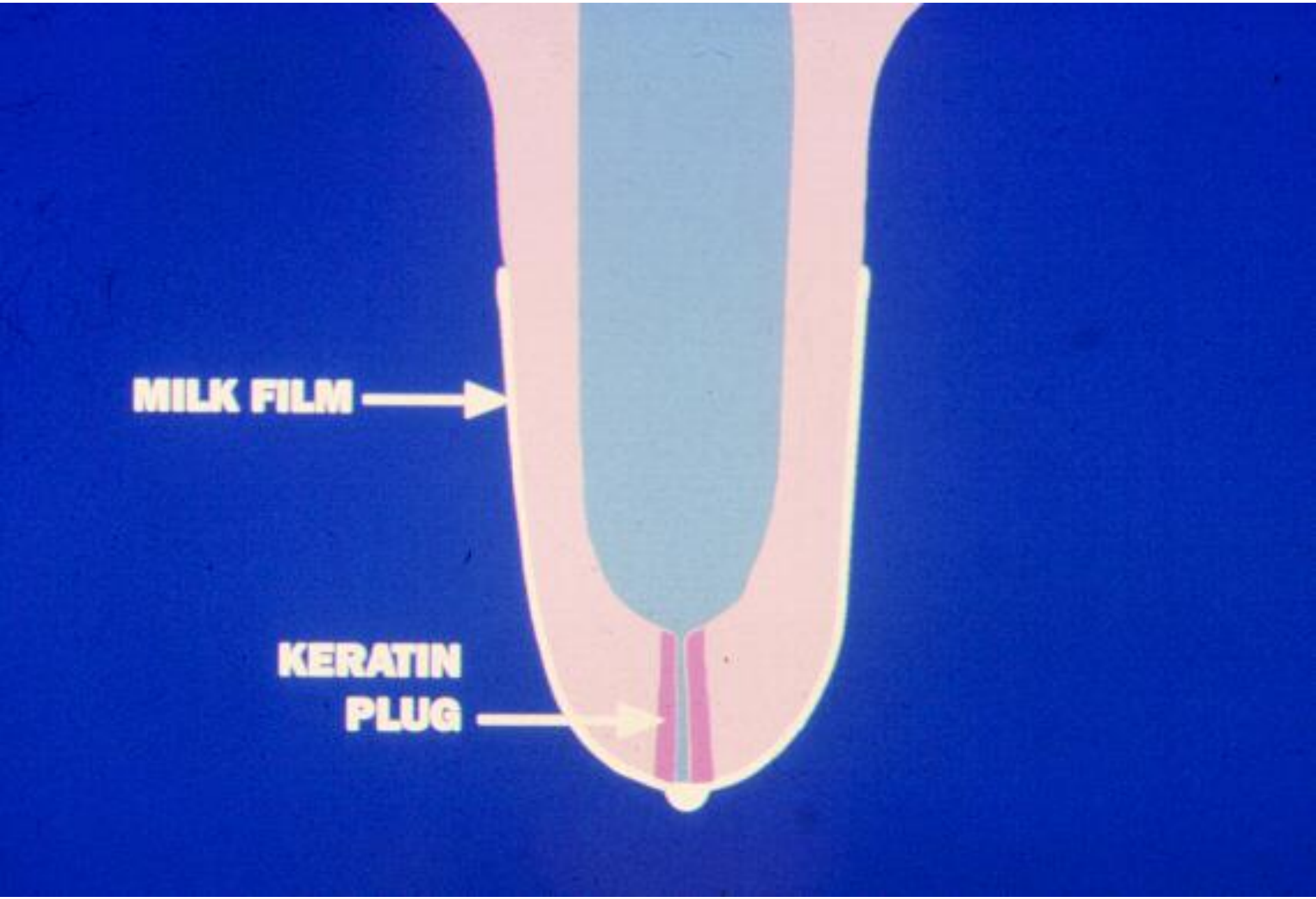
Good Parlor Alignment



New Parlor Alignment

Teat Dipping

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


MILK FILM
KERATIN
PLUG

Ideal Milking Routine

1. Dry wipe and predip 8-12 cows
2. Strip and dry 8-12 cows
3. Attach and align 8-12 cows

Ideal Milking Routine

1. Fastest milking
2. Best quality
3. Great parlor performance

Proper System Vacuum Setting

Highline 14 - 15 Inches*

47.4 - 50 kPa

(*without automation)

Lowline 12.8 - 14.0 Inches

43.4 - 47.4 kPa

Never Change System Vacuum Up or Down More Than 0.5 Inches (1.7 kPa) at One Time

Vacuum Level

The key factor in milking speed is average claw vacuum under peak milk flow conditions

Higher Claw Vacuum

EQUALS

Faster Milking

Proper System Vacuum

Whatever Line Vacuum it Takes to Provide 11.5 to 12.5 Inches or

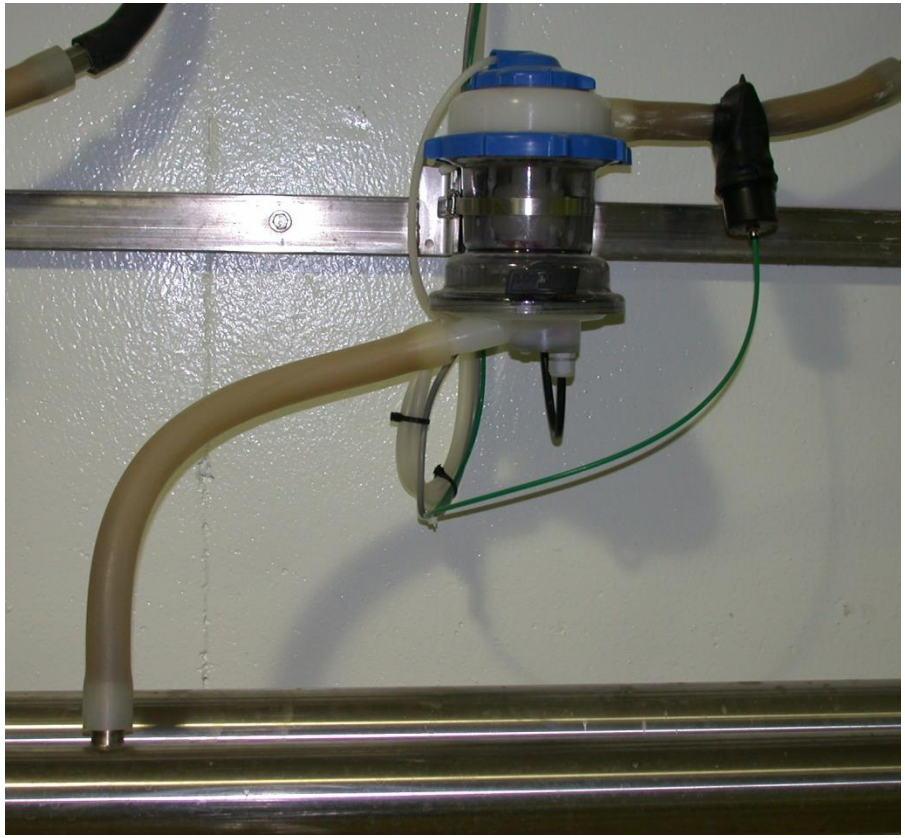
39 to 42.4 kPa at the Claw During Peak Flow

The Closer to 12-12.5 inches or

40.6-42.4 kPa the Better!

Peak Flow: 1 to 2.5 minutes after unit attachment

Proper System Vacuum

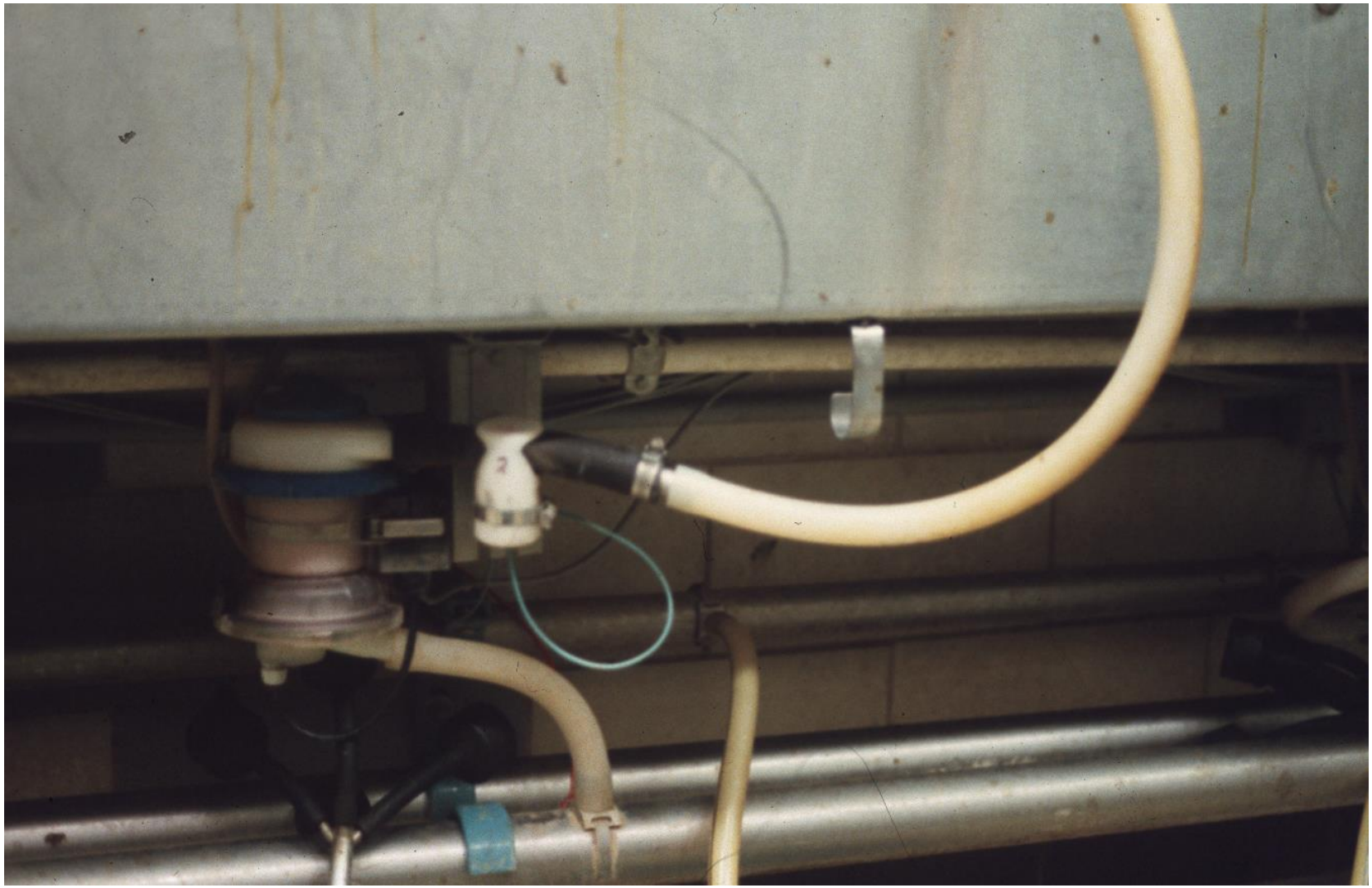


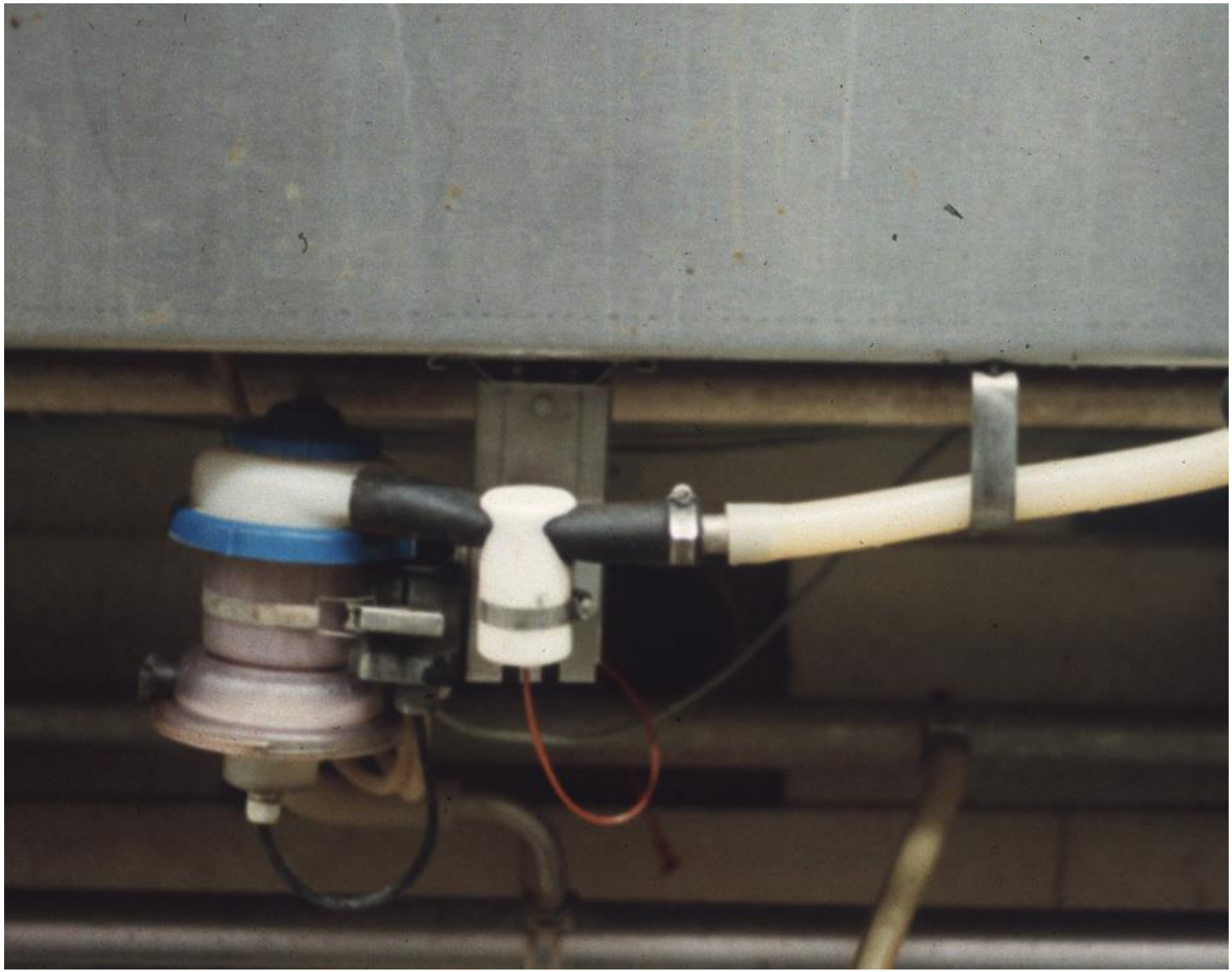
No loops or restrictions in milk flow

Proper System Vacuum

Huge extra loop causing extra lift.

Results = Lower Vacuum





REMEMBER

If Higher Vacuums Are to Be Used,
There Are Two Critical Points:

1. Good Milking Routine

2. Proper Take Off Settings

The Machine

Take Off Settings

1. End of Milk Delay (in secs)

2. End of Milk Setting (in lbs.)

Automatic Take Off Settings

- Goal is to shorten machine on time
- Reduce delay setting
- Raise end of milk threshold

** Make all changes slowly and make sure milk routine is acceptable

Automatic Take Off Settings

The Machine

End of Milk Delay:

The Time It Takes to Shut the Vacuum Off Once the Cow Reaches the End of Milk Threshold

Many Set at 10, 15, or 30 Seconds

Goal: 1-2 seconds preferred

The Machine

Make all changes slowly. Cut the delay setting in half each week until you reach your desired setting. Be sure to monitor the results each time the setting is changed.

The Machine

End of Milk Threshold:

The Level of Milk Flow In Which The Machine Shuts Off

Many Set at 0.4 pounds (182gm) or Less

Goal:

Milk as quickly and completely as possible

The Machine

End of Milk Threshold:

The Level of Milk Flow In Which The Machine Shuts Off

Many Systems are based on resistance settings

Factory settings usually around 1600 ohms (Floats)

Goal:

Many set lower than 600 ohms

The Machine

Make All Changes Slowly.
Raise the End of Milk
Setting 0.1 lb. (50gm)\Week
or 50-100 ohm\week Until
You Reach Desired Setting

Be sure to monitor the results each time the setting is changed.

The Machine

When you get to the upper limits, you may want to wait longer between changes. (monthly)

Again, be sure to monitor the results each time the setting is changed.

Automatic Take Off Settings

At this time,

we do not clearly know

how high the settings can really go

The cows seem to keep adjusting to

whatever level we use over time!

The key is to keep monitoring!


MANUAL
NO MILK
C
2
2.4
CODE
COW NO./INFO.
1
PRODUCTION

The Machine

Milk Outs

How dry is dry?

If there is less than 500 ml evenly divided in the udder of a cow when the machine is removed, there is no negative impact on production or milk quality.

The Machine

Milk Outs

How dry is dry?

Many use less than 250 ml evenly divided in the udders.

Most farms, less than 50 to 100 ml left in the udders

The Machine

Milk Outs

How do you measure milk outs?

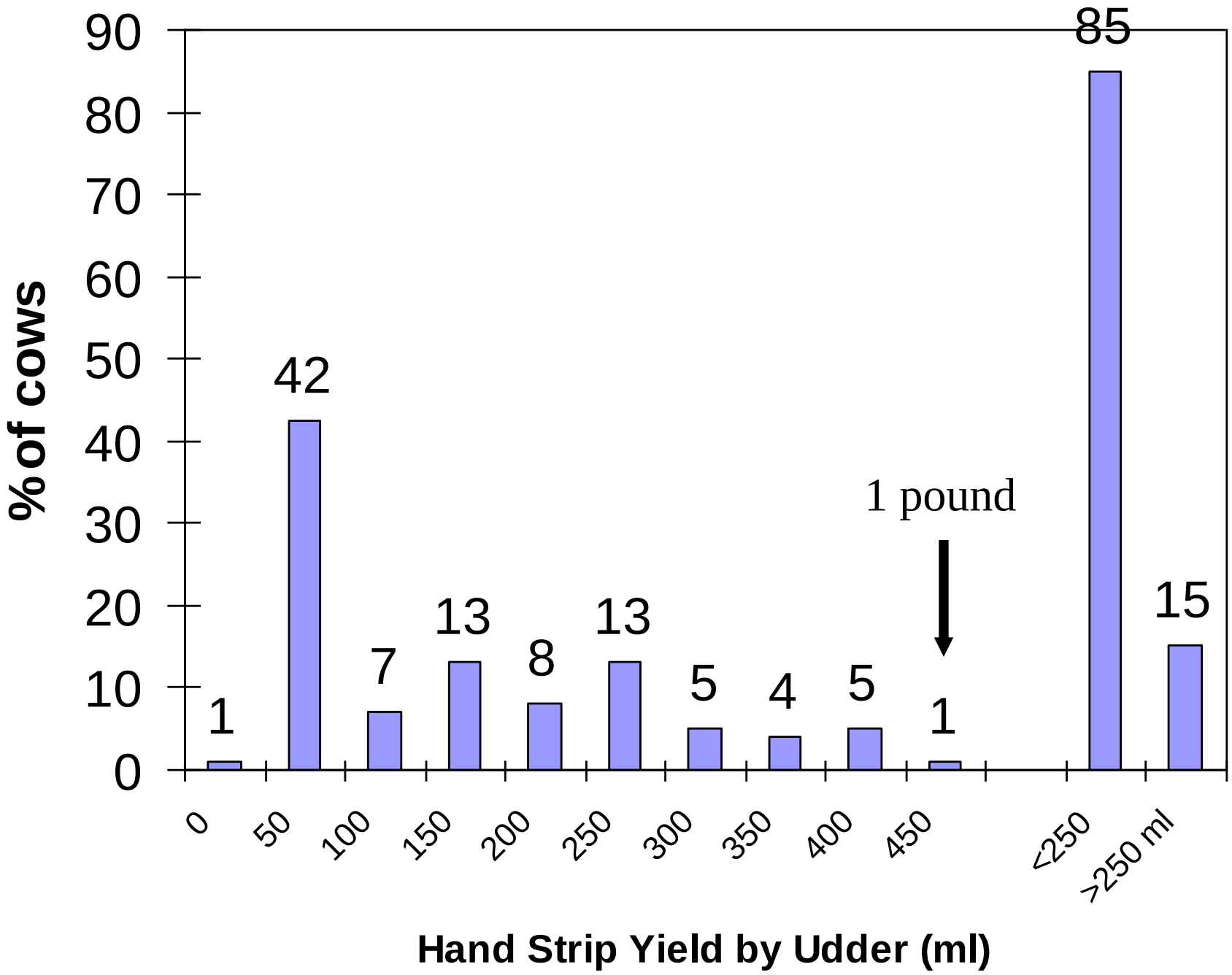
Use a plastic measuring cup from

the kitchen to the barn!

Do 5 to 10 animals

The Machine

If You Are Not Sure, Do Strip Yields. If There Is Less Than 250 ml of Milk Evenly Divided in the Udder, the Cow Is Completely Milked


90
80
70
60
50
40
30
20
10
0
% of cows
1
42
7
13
8
13
5
4
5
1
85
15
1 pound
0
50
100
150
200
250
300
350
400
450
<250
>250 ml
Hand Strip Yield by Udder (ml)

Recommendations

- Hand stripping recommendations:
  - Quick hand strip immediately after unit removal (<1 min)
  - Cleanly milked = <100 ml/quarter
  - Less than 20% of quarters with >100mlmilk

The Machine

Milk Outs

Doing strip yields will teach you

and the farmer a lot about the milking of cows.

Improper alignment is very obvious.

The Machine

Milk Outs

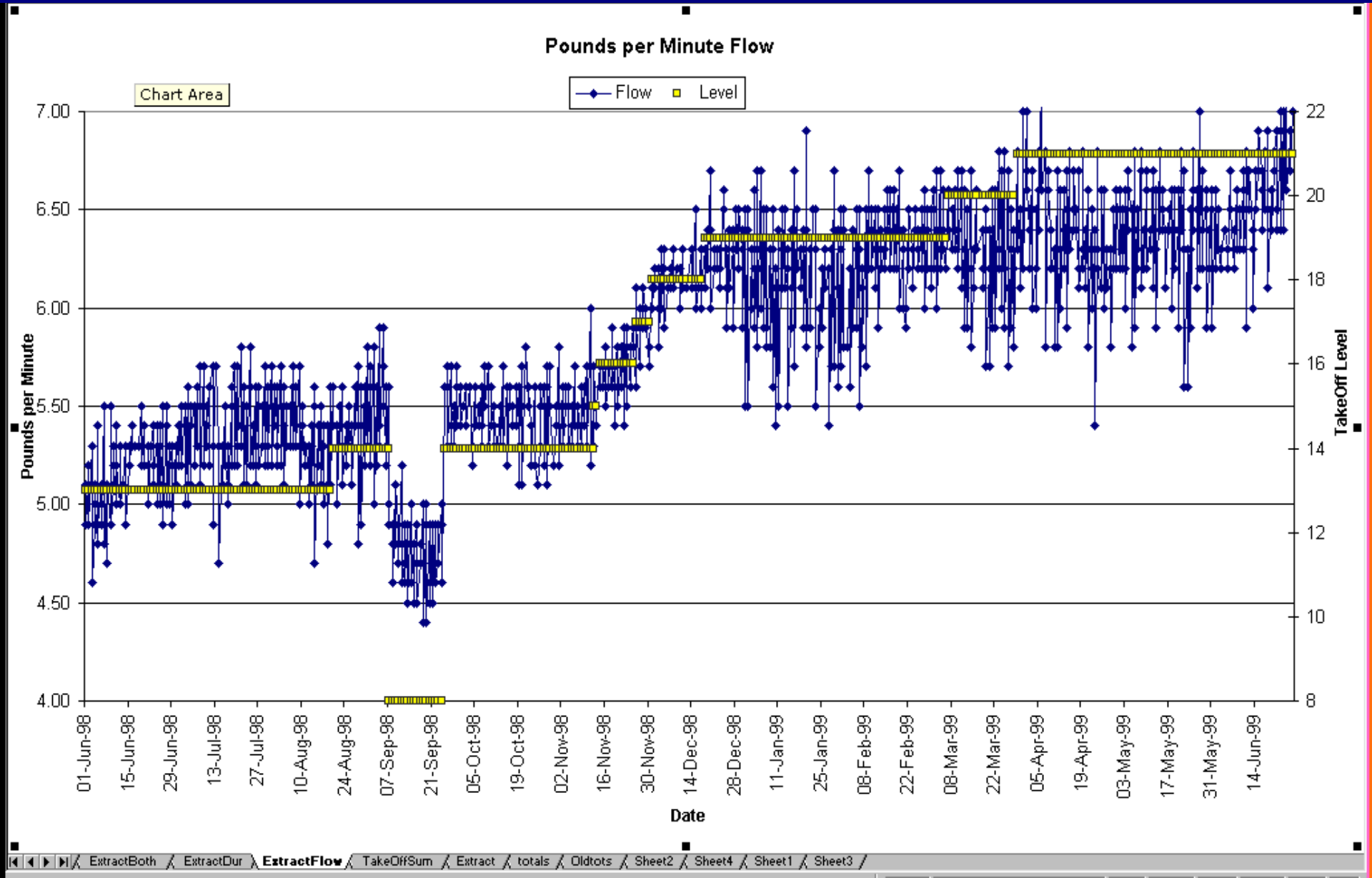
When do you measure milk outs?

Immediately after the machine comes

off the cow

Pounds per Minute Flow | Minutes Duration | Pounds Milk
Flow
Duration
Milk/Cow
Minutes Ontime/Pounds per Minute
Pounds per Milking
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
45
40
35
30
25
20
01-Aug-98
08-Aug-98
15-Aug-98
22-Aug-98
29-Aug-98
05-Sep-98
12-Sep-98
19-Sep-98
26-Sep-98
03-Oct-98
10-Oct-98
17-Oct-98
24-Oct-98
31-Oct-98
07-Nov-98
14-Nov-98
21-Nov-98
28-Nov-98
05-Dec-98
Date

Flow Rate Changes



Automatic Take Offs Are A Great Investment For Any Farm

IF PROPERLY ADJUSTED

Automatic Take Offs Are A Great Investment For Any Farm

IF TRUSTED!

Bring Consistency and Calm to Milking

Automatic Take Offs

Lot's Of Positive Changes

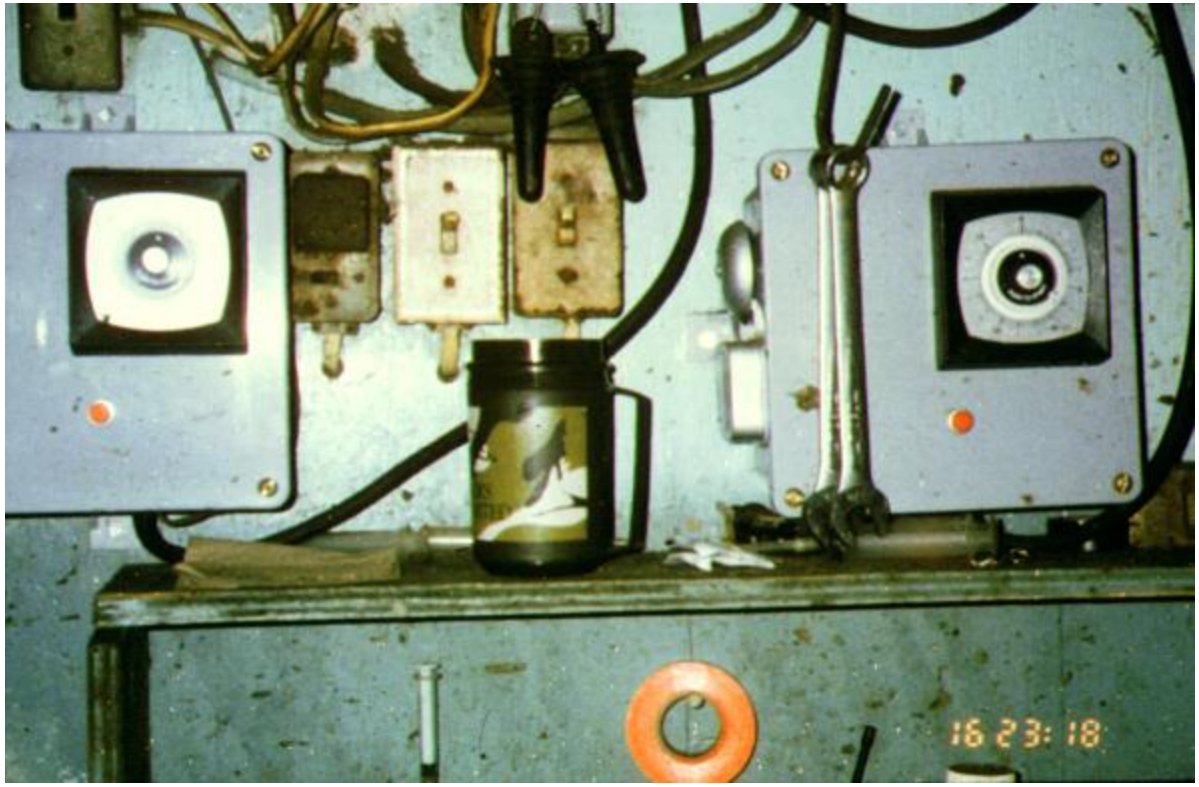
It may be time to upgrade your system for faster milking!

Automatic Take Offs

Lot's Of Positive Changes

HFC

Timed Milking



You determine maximum milk times!

Timed Milking

You determine maximum milk times!

Timed Milking

You determine maximum milk times!

Reattaching Units

In a 3X dairy, units should Never be reattached if:

- **Milked longer than 2 minutes**
- **Given over 10 pounds/4.5kg of milk**
- **Never**

Automatic Take Offs Reattaching Units

Once person puts on last unit on one side parlor, they should walk back along parlor and attach any early fall offs.

Automatic Take Offs Removing Units

Do not allow one or two units to dictate the speed of the parlor

Milk Flow Guidelines

- Flow rates increase across all time sets
- Average flow per minute >7.0 lbs (3.2kg)
- Peak Flow >9.0 pounds (4.1 kg)
- % Time in Low Flow 10% or less
- At least 15lbs. (6.8kg) milk in first 2 minutes

Milk Flow Guidelines

- Average flow per minute >7.0 (3.2kg)
  - May be most important number, better that peak flow because better indicator of what goes on during entire milking

Pulsator Guidelines

- Proper B phase and D phase critical
- B phase 490 to 525 milliseconds
- D phase 240 or more milliseconds
- May need to change rate or ratios

Healthy Pulsator

Cow Flow Impact

(Before Milking)

- **Crowd Gate**
- **Cleaner Cows**
  - –Udder Flaming
  - –Tail Docking
  - –Proper Stall Maintenance
  - –Proper Alley Cleaning

Poor Cow Flow

- Cows wait for you
- Trained to enter when you go into holding area to get them
- Cows are creatures of habit (good or bad)

Good Cow Flow

- Keep Out Of Holding Area
- Let Crowd Gate Do The Work,
  (Use Bell Or Buzzer)
- Teach Them To Come In On Their Own, Don't Force Them In


CAUTION CHEMICAL HAZARD
CAUTION CHEMICAL HAZARD
CAUTION CHEMICAL HAZARD

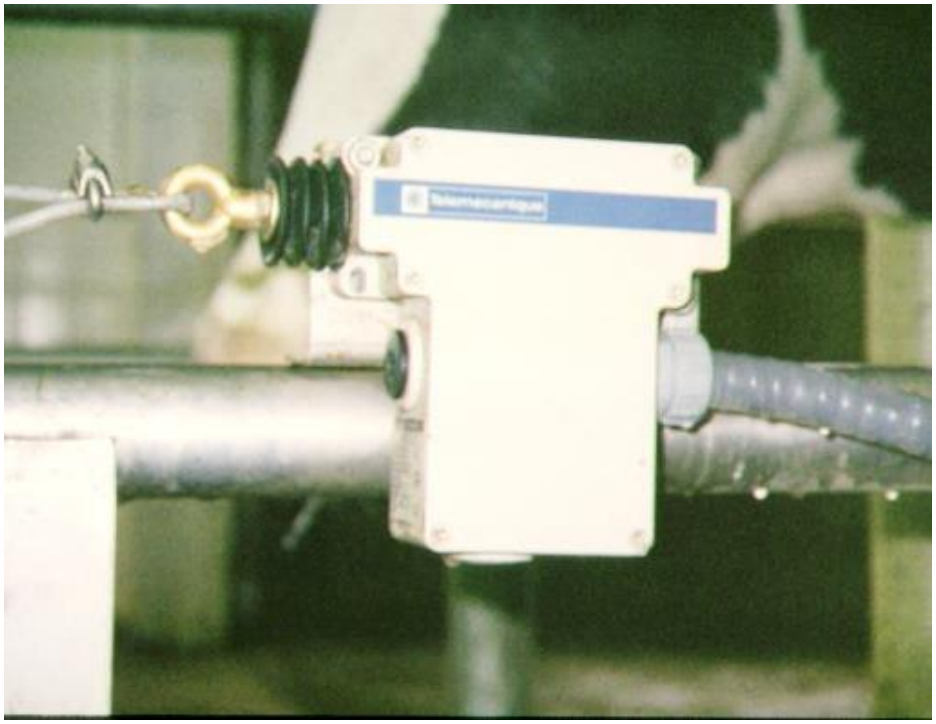
CROWD GATE

Typical crowd gate “pushes” cows in parlor!

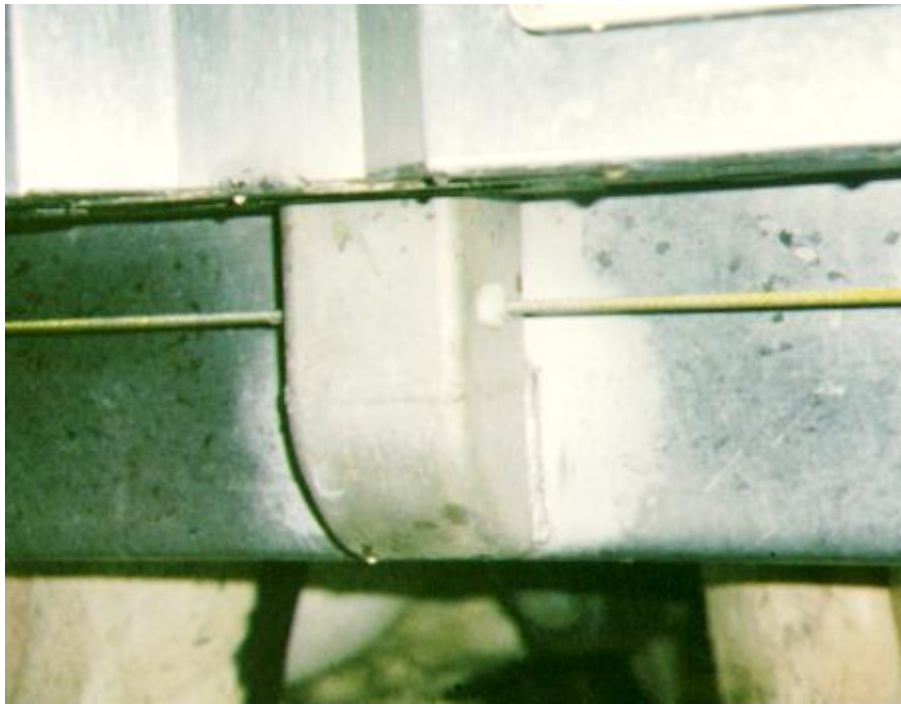
CROWD GATE

This is the way a crowd gate should work!

Crowd Gate Management



Special timer switch



Coated Cable in parlor

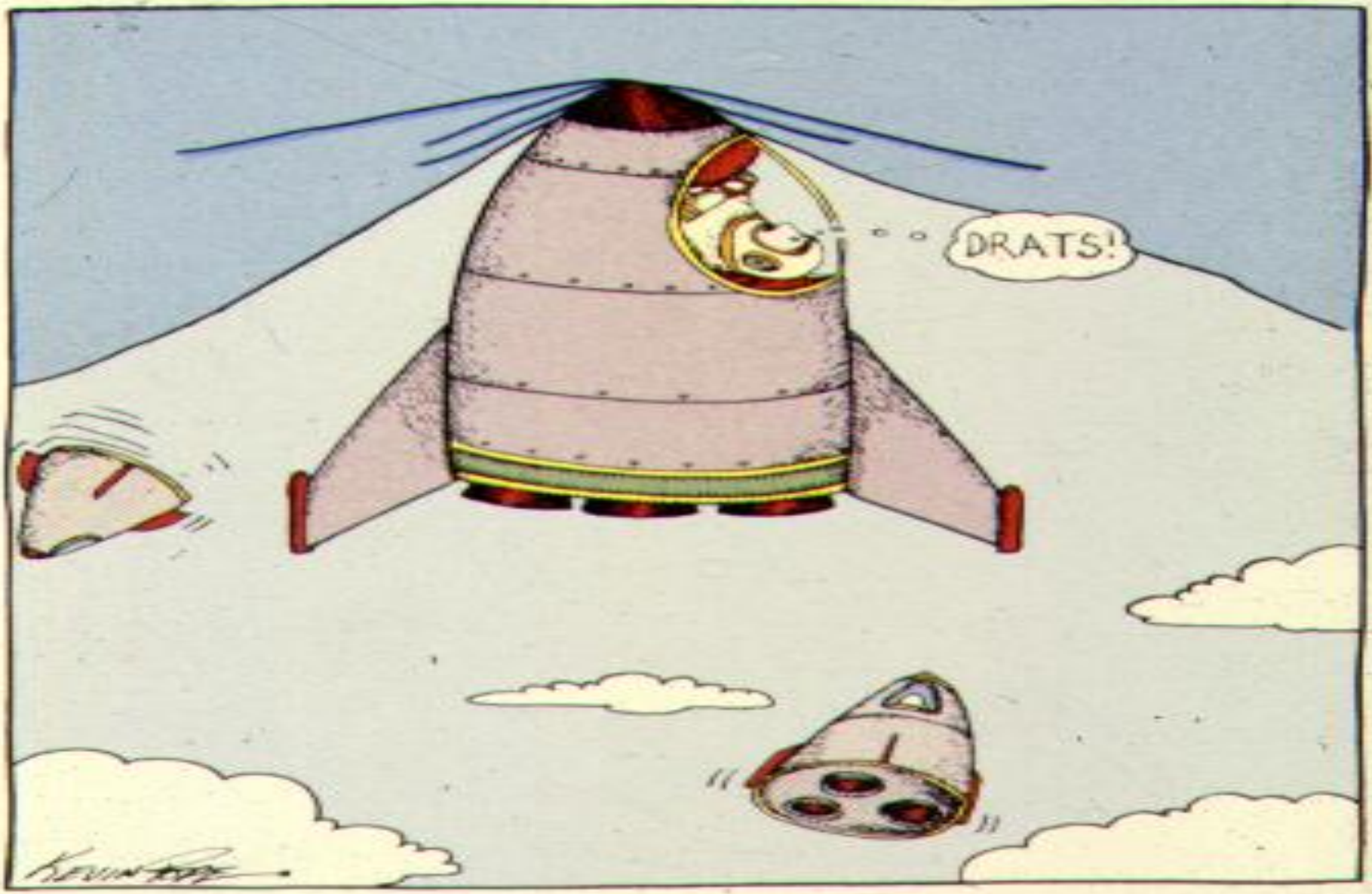
Crowd Gate Management

Total crowd gate control from any location in the parlor. Increase cow flow 10-20%. Train cows to move on bell, not the movement of the crowd gate.

Crowd Gate Management

Controlled Electricity Is Necessary

THE SKY'S THE LIMIT.



THE END

(UDDERLY)

Questions