SUCCESSFUL MILKING

Understanding and Evaluating Procedures and Protocols to Achieve Positive Milking Experiences

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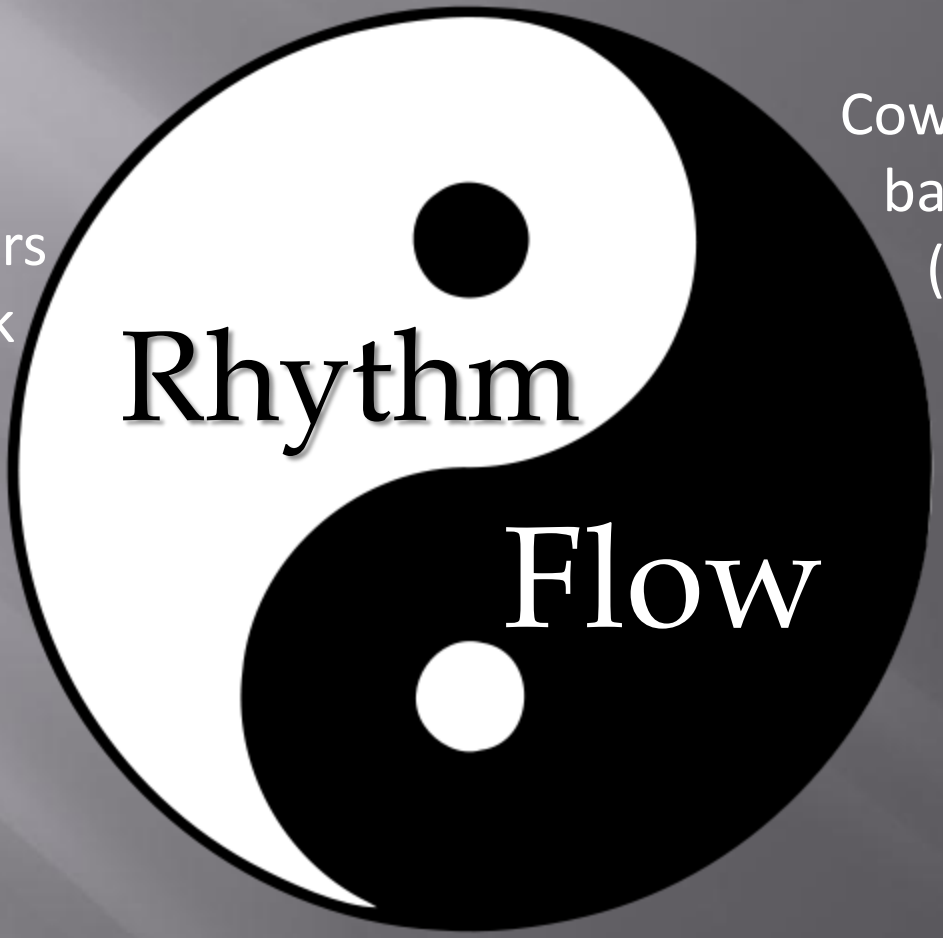
The Tao of Milking Cows

Milkers
Milk



Cows move from the barn to the parlor (and back) with minimal human intervention

Labor is transferred from humans to cows and interact only at the udder

The Tao of Milking Cows

Rhythm and Flow help prevent the cardinal sins of milking:

- Entering the holding area
- Hose usage in the parlor
- Hollering, hitting, hating
- Rushing - trying to work faster than a cow
- Leaving the pit to assist in the Flow

Goals of a Milking Program

- High Quality Milk
- Efficient Parlor Usage
- Informed, Contented Parlor Staff
- Happy, “Free-flowing” Cows

Keys to Achieving Goals

Milking Routine MUST Be:

- Calm
- Clean
- Quiet
- Consistent

The Spa Treatment

- Invite Cows into the Parlor
- Stimulate Milk Letdown
- Attach Units at Peak Letdown- Complete and Comfortable Milk Out
- Promote Udder Health with Pre- and Post-milking sanitation
- Allow Cows to Move at Their Own Speed

Procedures in a Milking Routine

- Pre-milking equipment inspection
- Pushing Cows to the Holding Area
- Loading Cows into the Parlor
- Pre-dipping Cows
- Fore-stripping
- Drying/ Cleaning Teats
- Attaching and Adjusting Units
- Post-Dipping
- Exiting/ Returning Cows to the Barn
- Post-milking equipment inspection

Pre-milking inspection

- Hoses, jetter cups, clamps, etc properly secured
- Claws, receivers, filters properly cleaned
- Hoses and air tubes are intact
- Bulk tank- either properly washed or milked properly cooled
- Dip, towels, and other supplies- available and ready for use
- Are all of the gates in the correct position??
- Make sure gloves, aprons, and sleeves are clean

Pre-milking inspection

MOVING COWS

- Cow Usher is more appropriate job title than "pusher"
- Cows are not dumb- speak cowspeak
- Understand cow behavior (Read Temple Grandin)
- Be timely- don't keep milkers or cows waiting
- For the cow, the milking experience begins in the barn

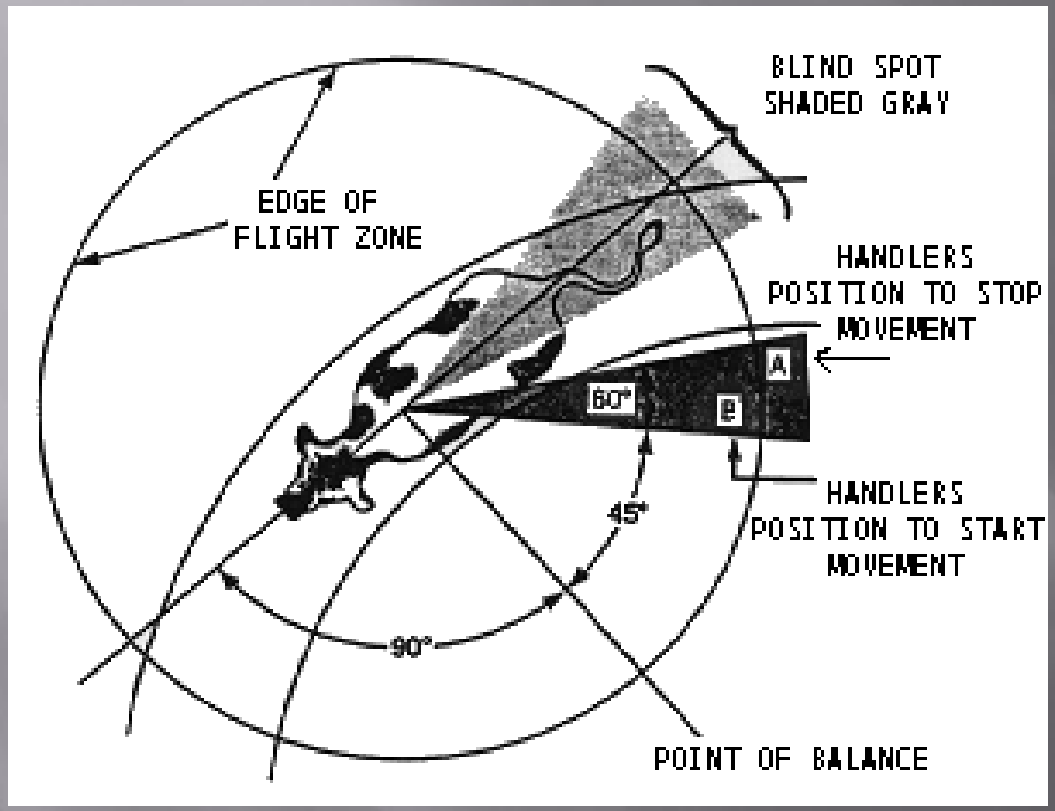
Cow behavior

- Animals of prey- fear is first response
- Detail oriented
- Dark spaces, shadows, shiny floors- shake confidence
- First impressions are everything
- Understand body language, not the English or Spanish language

Moving Cows and Cow Behavior

- Vast majority of cow communication is non-verbal- so BE QUIET
- Head and Shoulders= nucleus of flight zone
- Angle and distance determine route and rate
- Stay out of the blind spots
- Eye contact, body angle and intent (energy)
- Move fluidly
- Be consistent- everybody, everyday
- Gentle encouragement

Moving Cows- Flight Zone

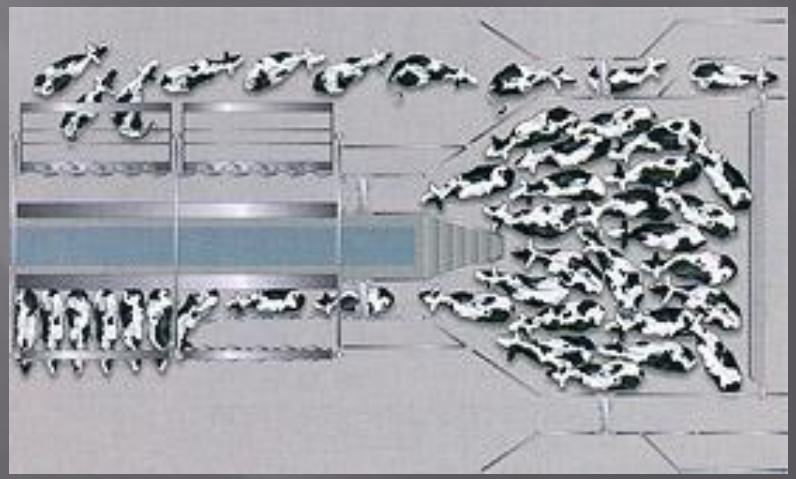


Sending Signals:

- Eye contact
- Body angle (head and shoulders)
- Rate of movement
- Pressure on flight zone
- Angle with balance point
- Intent

Loading Cows

- Stay out of the holding area!
- Wait at the front of the parlor or follow the first cow to the front
- Begin udder prep- allow cows to enter on their own
- Practice courteous crowd gate usage



Crowd Gate Ettiquette

- Always use electricity
- Crowd gates are AREA REDUCERS, not cow pushers
- Move in small increments
- Stay out of the holding area- better trained cows= less crowd gate usage
- Buzzers or no buzzers?

Udder Preparation

- Prep-lag time= time between initial contact with the udder and unit attachment
  - 90 seconds is ideal
- Partial- no fore-stripping
- FULL- includes fore-stripping
  - Better for the cow- more stimulation
  - Better for milk quality
  - Typically results in fuller milk-out and shorter unit on-time

Fore Stripping

- Before or after pre-dip
- 2-4 squirts from each teat, ~5 seconds
- One hand more stimulating than Two
- Examine udder for swelling or injury
- Examine milk for abnormalities
  - Clots or “slugs”
  - Flakes
  - Discoloration (grey, watery, bloody etc)

Pre- Dip

- Dippers are better than sprayers
  - Better coverage
  - Uses less dip
  - Important- wash dip cups regularly!
- Apply to skin, not debris
- Contact time= 20-30 seconds

Drying/ Wiping

- 10-12 seconds for proper stimulation
- 1 towel per cow
- Focus on teat end
- “cork screw” motion
- Different part of towel for each teat
- Flip towel for second, quick final wipe
- Towels
  - Cloth, paper, synthetic?
  - Dry or spin dry?

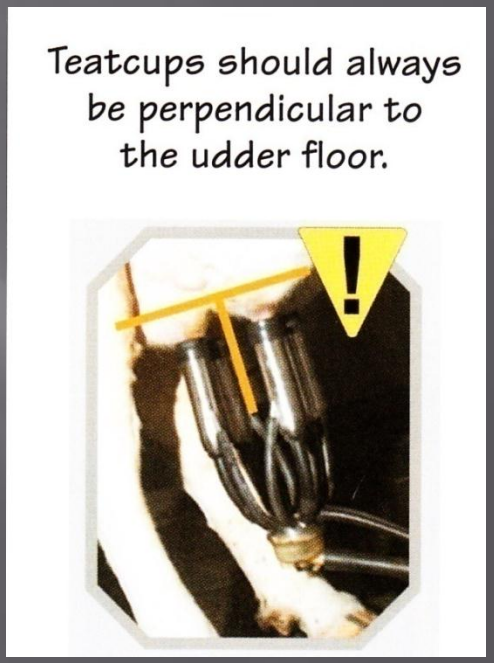
Unit Attatchment

- Mouthpieces and vent holes- free of manure
- Minimize air leakage
- UNIT ALLIGNMENT
  - Important for even and complete milk out
  - Claw must hang parallel to udder floor
  - No twist or extreme force to one side
- 3-quartered cows
  - Clean plugs are better than “tucking” an inflation

Unit Allignment

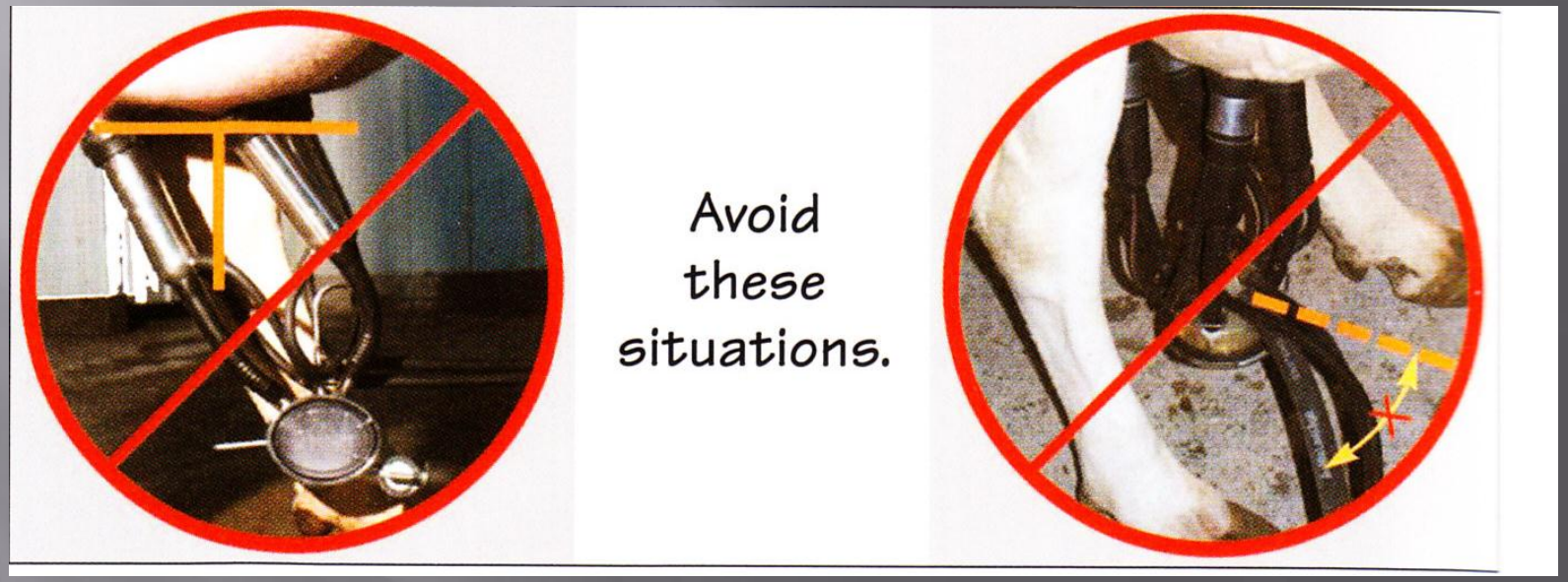
Unit Allignment

- Unit must hang parallel with the udder floor



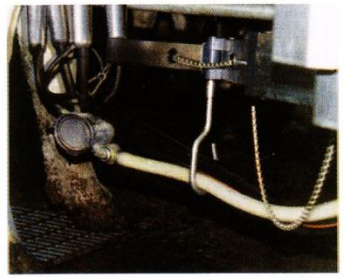
Unit Allignment

- Teat cups must be perpendicular to udder floor
- Milk hose must be parallel with midline

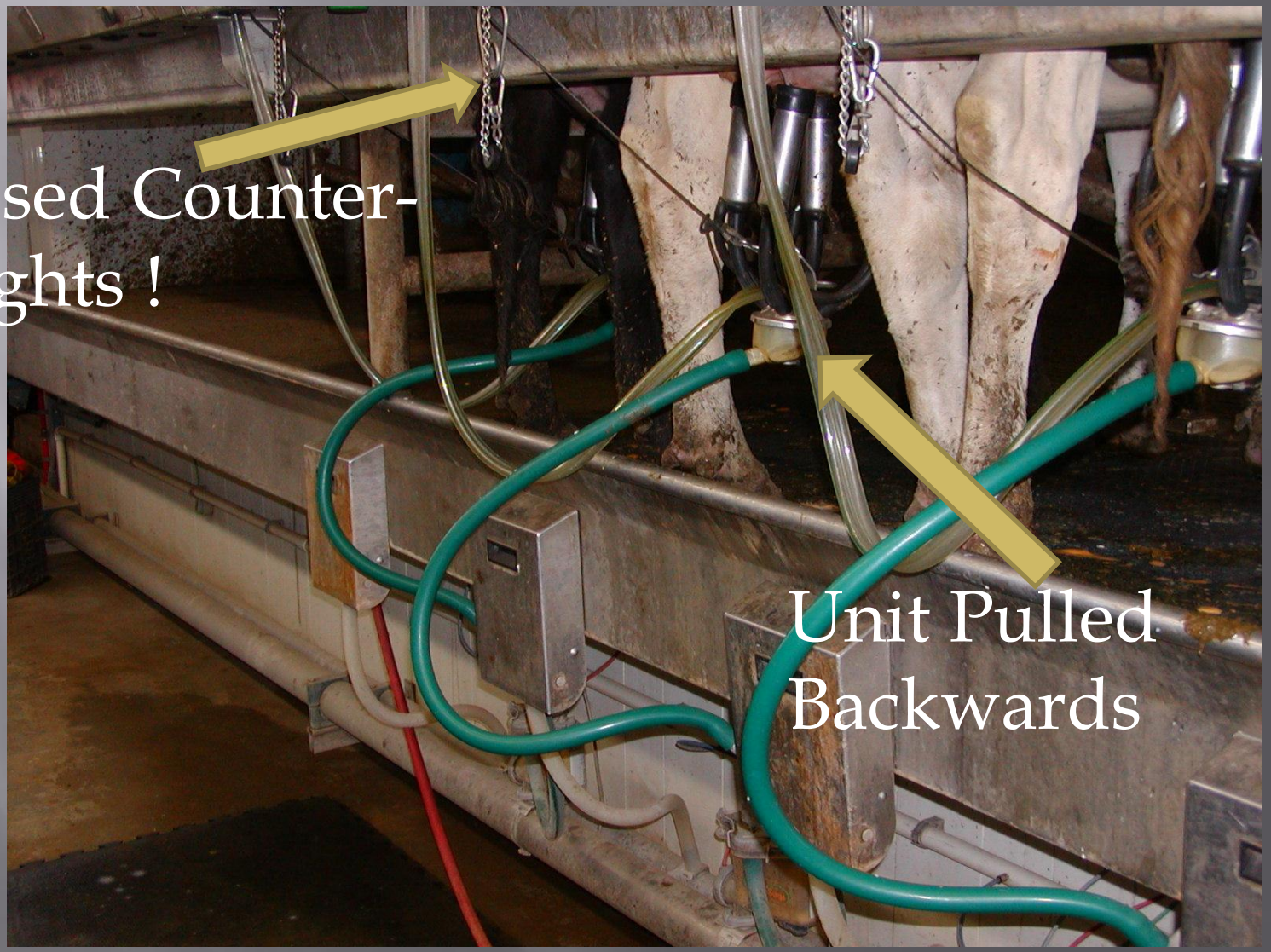


Unit Allignment

- Mechanisms for holding units in place
- Make sure they work
- Make sure they are used
- Utilize for “up and down” and “side to side” positioning



Unit Allignment?



Milking

- Avoid machine stripping
- Do not squeeze milk tube
- Re-adjust unit if necessary
- Quickly address liner slippage
- Proper stimulation and unit allignment= fewer re-attaches and the temptation to milk on "manual"

End of Milking

- Cows should not be restless or “kicky” at the end of milking
- Vacuum decay & plugged air vents
- Check udder for milk out and swelling
- Post- dip (same rules apply as pre-dip)
- Don’t “chase” units

Exiting

- No poking, jabbing, whistling, or hollering is necessary
- Wait until all cows have cleared the exit gate

Post-Milking

- Cleanup
- Report and record
- Check Bulk Tank
- Make sure (at least) 1st wash cycle runs properly

Prep-Lag Summary

- Example- 6 cow set
- Forestrip= 8 seconds * 6= 48 sec.
- Dip= 4 seconds *6= 24 sec.
- Wipe/ Attach=12 sec.(wipe)+3 sec.(attach)=15
- Total Prep-Lag per cow= 87 seconds
- NOTE: walking time built into this summary

Counting Steps

- One sweeping step between cows, towel ready
- No wandering from cow to cow
- Count steps from last cow to first
- Right place, right time

Location, Location

- Create logical system of placing dip cups, plugs, towels, etc.
- Comply with the system

Routine Options

- 2 step= strip/dip, wipe/attach
  - Stimulation and timing more important than ever!
- 3 step= strip, dip, wipe/attach
- 4 step= strip, dip, wipe, attach
- My recommendation
  - Combine wipe and attach- provides most control over prep-lag on a per-cow basis

Multiple Milker Routines

- Sequential- milkers "follow" one another
  - Problem- maintaining proper distance between milkers to ensure proper prep-lag
- Semi-territorial and Territorial- each milker is responsible for entire procedure for a set of cows
  - Much better than sequential because of control over timing of procedures

What about the Pusher?

- The pusher can screw up the consistency of the routine
- Options:
  - Pusher ONLY post-dips cows
  - Pusher replenishes supplies and doesn't participate in milking
  - Pusher becomes part of territorial routine
  - Pusher adjusts units, or wipes down units, cleans floor, etc.
- Bottom line- define the role of the pusher in the parlor

Evaluation

- Procedures
- Routines
- Individual Milkers or shifts
- Teat and Hygiene scoring

Evaluating Stimulation

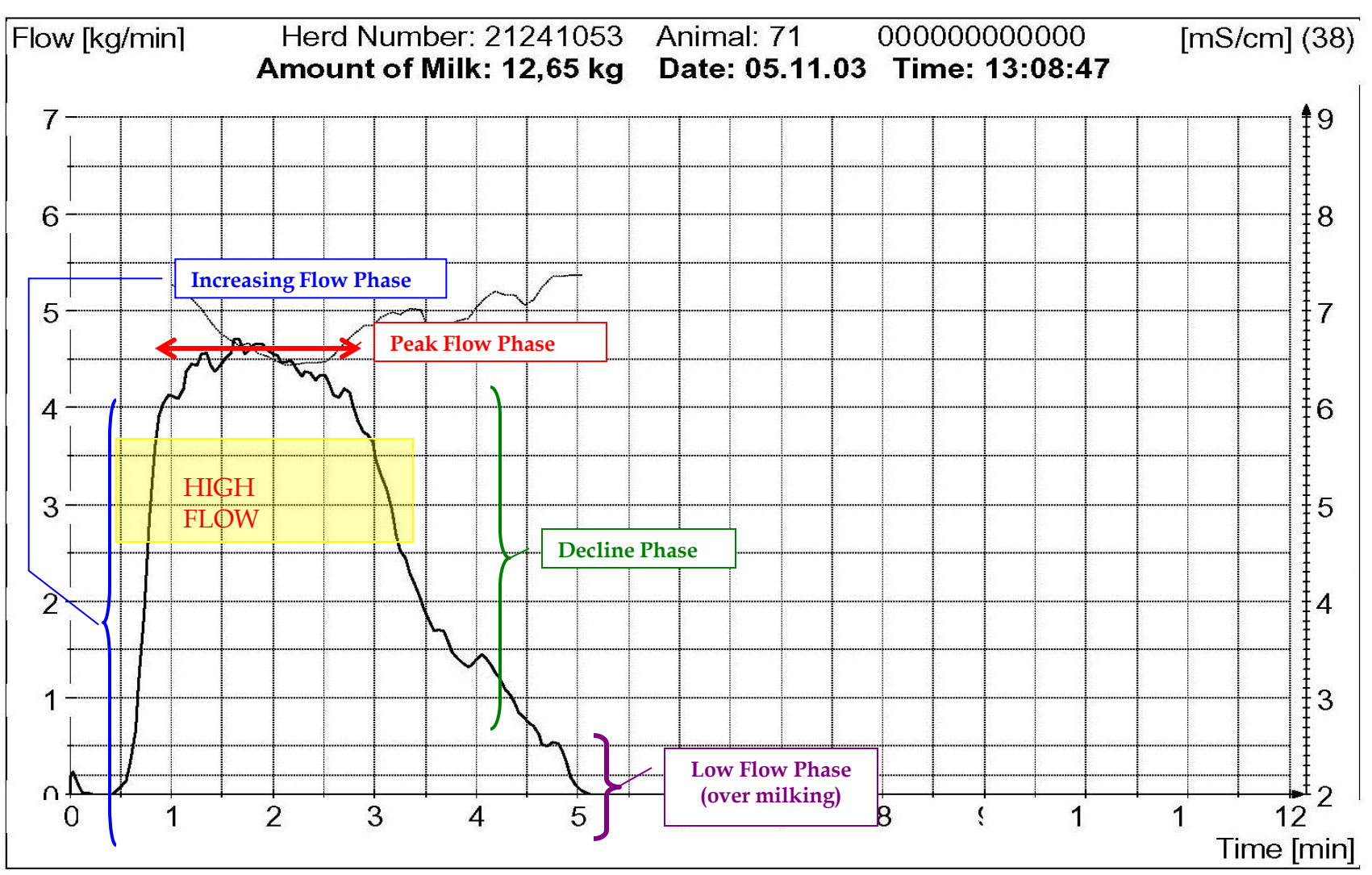
- Visual
  - Teats plump and full of milk?
  - Milk flow begin immediately after attachment?
  - Contiuous milk flow? Bimodal?
  - Cows restless or kicking early in the milking?
- Lacto-corder
- Parlor-specific software

The Lacto-corder

- LactoCorder
  - Rate of flow (kg/min)
  - Measures milk flow every 0.7 seconds
  - Total yield (kg)
  - Milk conductivity
  - Duration of Milking
  - Peak Milk flow
  - Bimodal Milk flow
  - Overmilking
  - Temperature
  - …

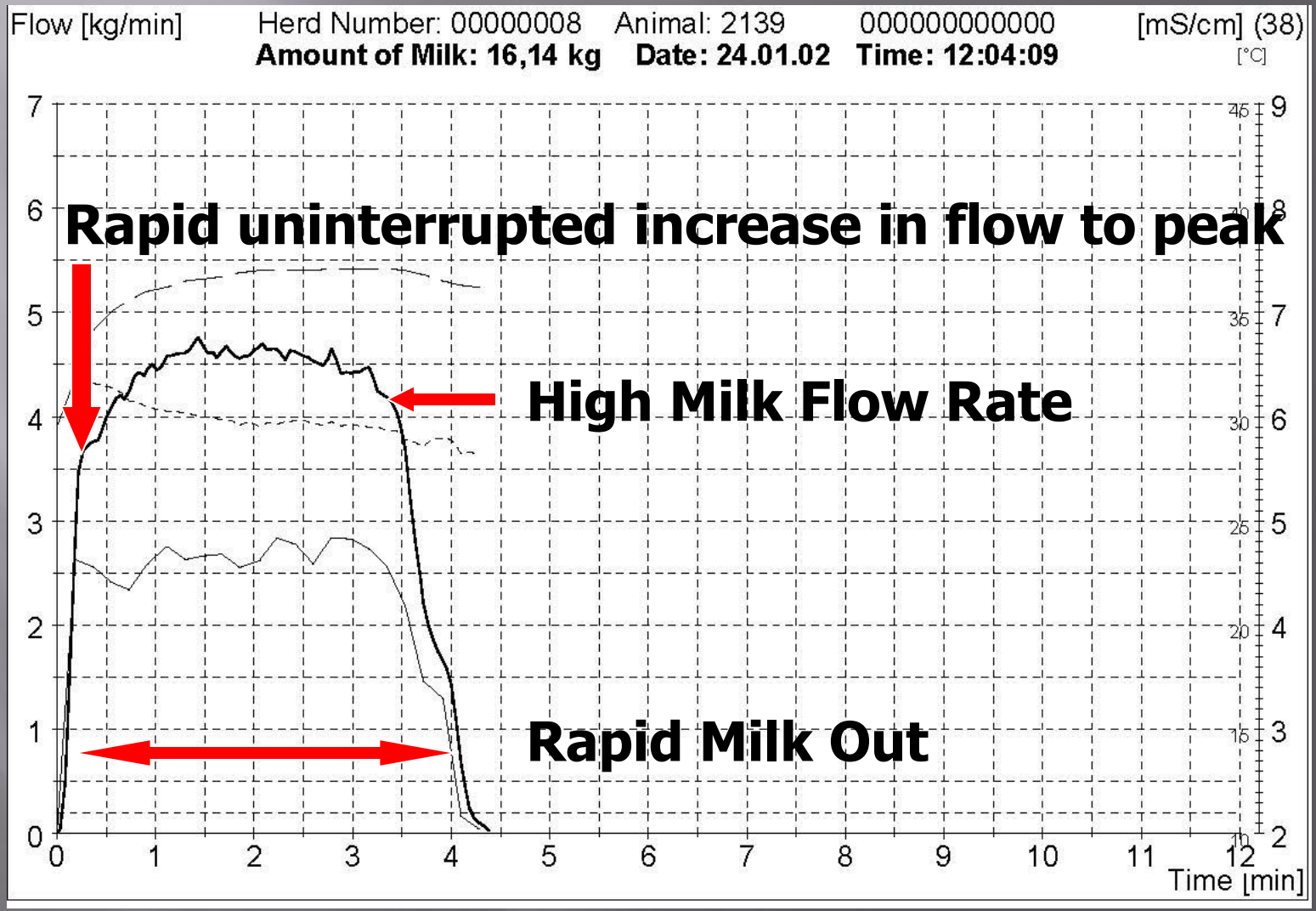
(Welcome, Shukken, Wallace 2008)

Phases of Milk Flow Curve



(Welcome et. Al.)

Milk Flow: good letdown



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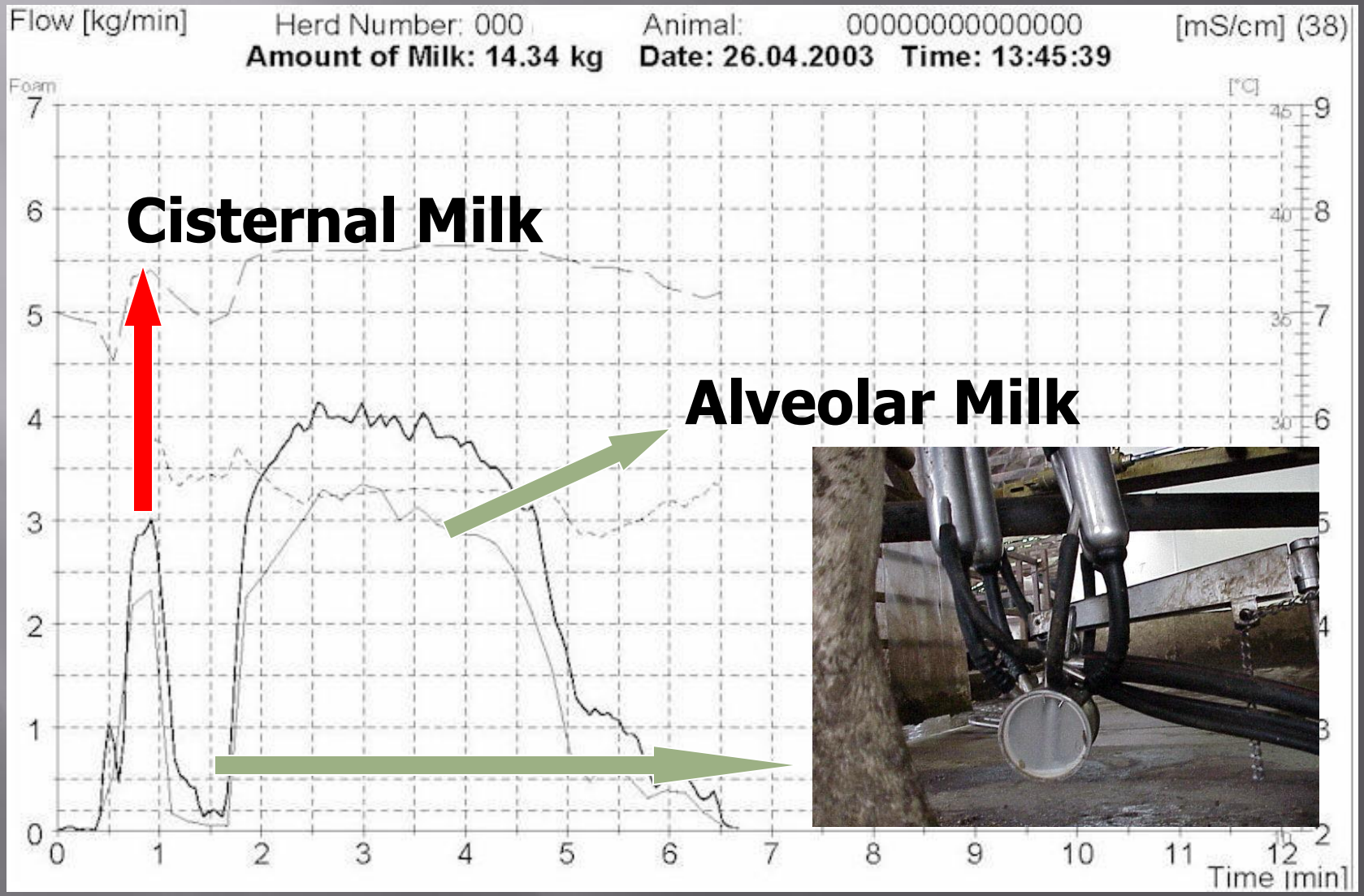
Milk Flow: poor letdown

Bimodal Milk Letdown



(Welcome, et . Al.)

Bi-Modal Milking- What Happened??

- Not enough stimulation time?
- Prep-Lag too long?
- Prep-Lag too short?
- Equipment??
- How do we figure it out?

Timing the Routine

- Time total Prep-Lag
  - 1st cow- time between entrance and initial contact
  - 1st cow- time between initial contact and unit attachment
  - Repeat for last cow in a set and middle cow in a set
- Time individual procedures
  - Measure time spent on fore-stripping, dipping, wiping and attaching
- Time between individual procedures
  - Measure time between fore-stripping and pre-dip
  - Measure time between pre-dip and wiping, etc.

Evaluating the Routine

- How many reattaches over period of observation?
- How many times do milkers stop milking?
  - To enter the holding area
  - Replenish supplies
  - Clean units or the deck
  - Other reasons
- Are milkers keeping their gloves clean?
- How many breeches of protocol occur over period of observation

Evaluate the Pusher

- Measure length of time to get a group of cows into the holding area
  - Is the pusher multi-tasking too much?
- Measure gap between groups of cows
- Be critical of cow handling and stall grooming techniques
- Is the pusher disrupting the parlor routine?

Evaluating a shift

- Don't forget about the night crew!
- Measure and benchmark:
  - Above mentioned parameters
  - Turns/hour
  - Cows/hour
  - Milk/cow/milking
  - Milk/hour
  - Milk/man/hour
  - Total milking time
- Should be equal per milking session

Other Tools of Measurement

- Avg. Unit on-time
- Avg. peak Flow
- Avg. pounds/minute/cow
- DHI SCC and LS Records
  - Changes in routine should be reflected
- Individual milk culture results
- Bulk Tank SCC results

Training Milkers

- Goals must be clearly established
- All milkers are treated equally
- Support for the routine is complete
- Importance and reasons for procedures explained
- No knowledge is taken for granted
- Unlike cows, people respond to spoken language- COMMUNICATE

Training Milkers

- Encourage feedback and ideas
- When evaluating, explain why you are doing it
- Share results, accomplishments, and track successes with the staff
- Be straightforward and honest- both with the good and the bad
- STAY CALM
- Correct problems immediately

Other things milkers should know

- What to do and who to call for:
  - Down cows
  - Power outage
  - Fire
  - Equipment failure
- How do perform CMT (and when)
- Where to put sick or lame cows
- Where the spare (fill in the blank) is
- How to read milk quality reports

Preguntas?