"Economic optimal production in heifers;
Starting them **Right**, a guide to the first few milkings"

David A. Reid, DVM
Rocky Ridge Dairy Consulting, LLC
Hazel Green, WI

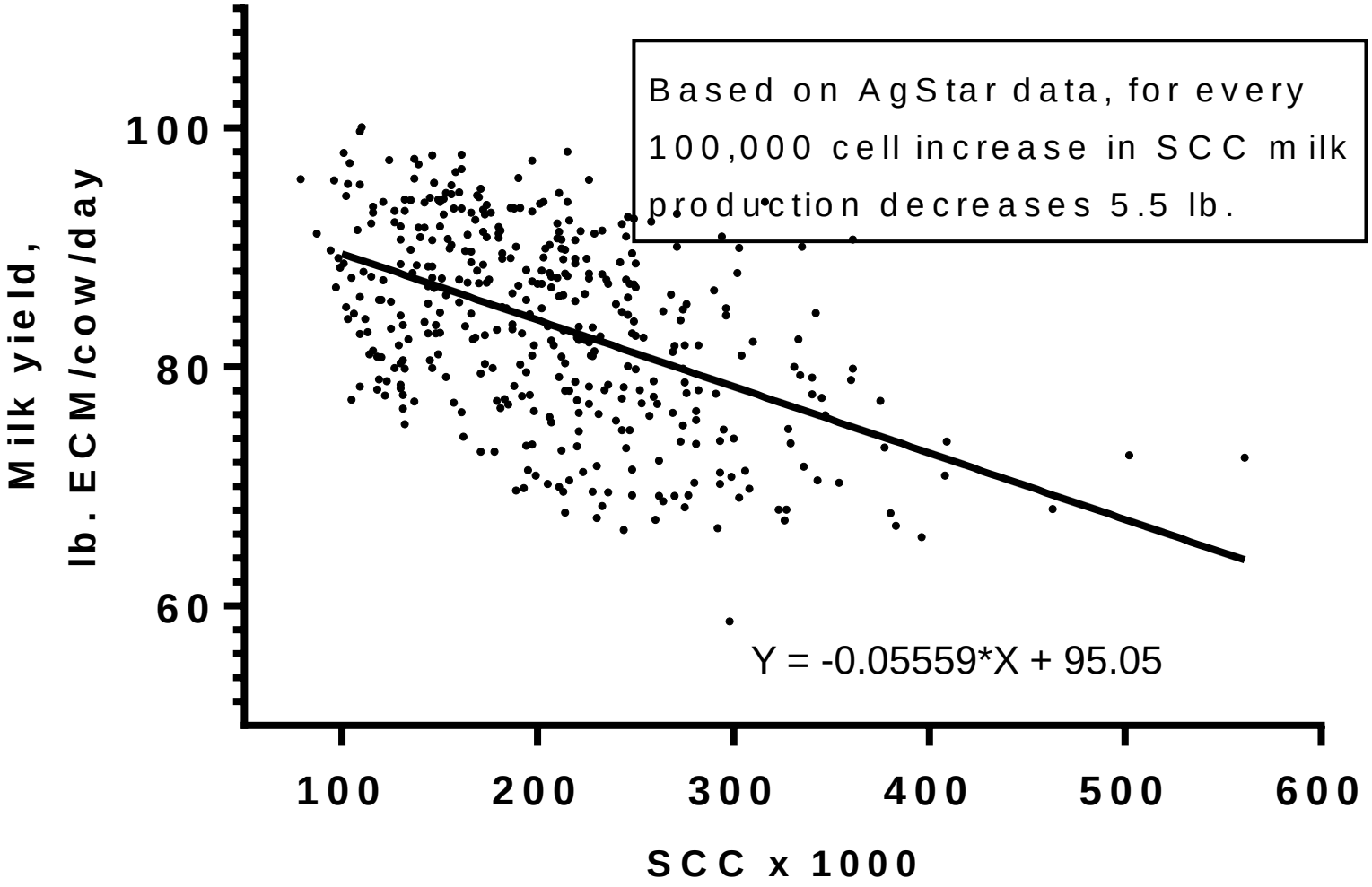
dreiddvm@gmail.com
612-963-1457

Goals/Monitors of Heifer Mastitis

- 90% of heifers below linear score 4 at first test
- Less than 5% clinical mastitis in first 30 days

What are these numbers in your herd?

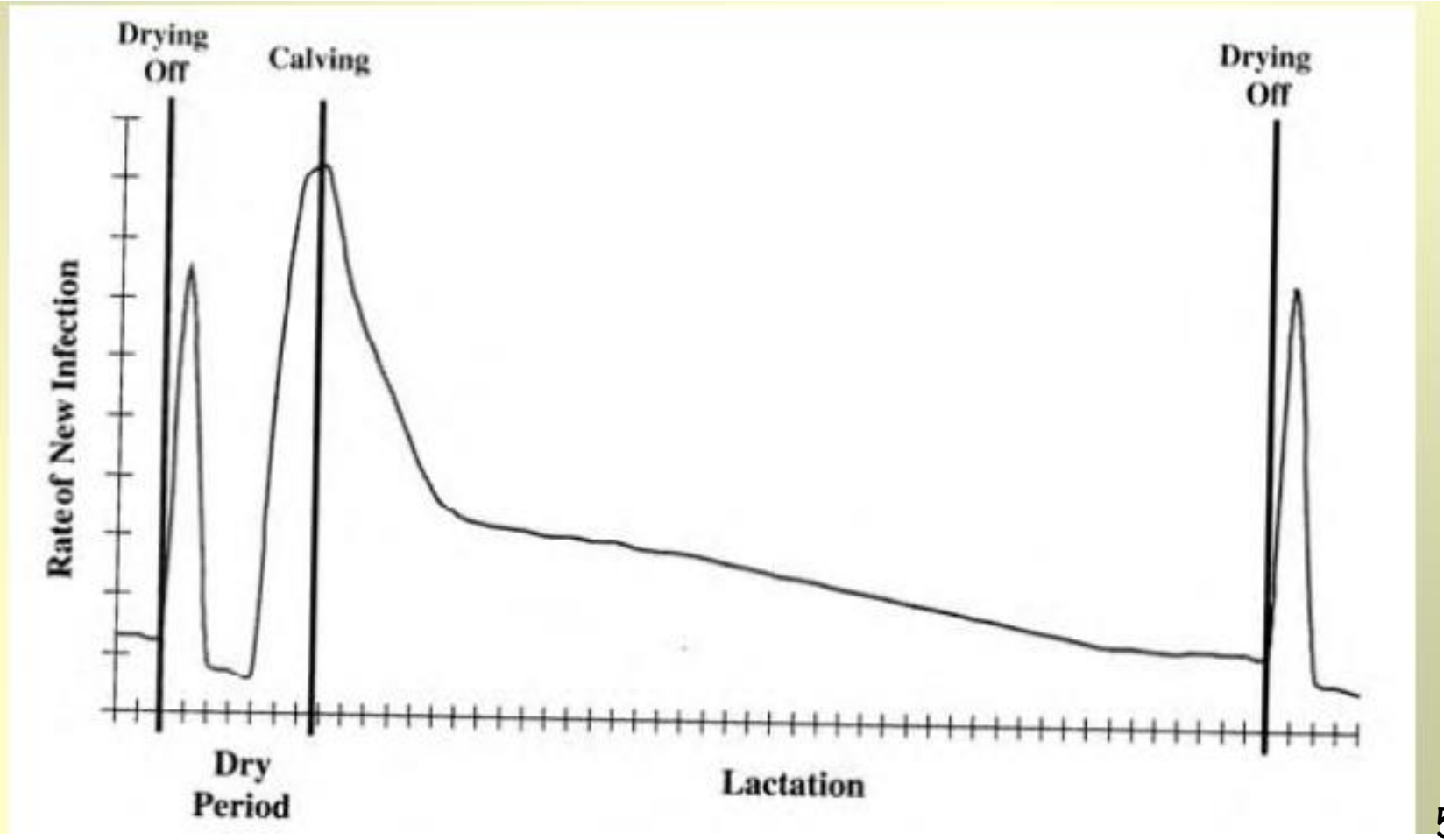
ARE SCCs MORE COSTLY NOW?



Transitioning to the Milking Herd

- The period immediately prior to calving is extremely important to the production & profitability in the upcoming lactation
  - Transition to lactation ration
  - Minimize metabolic conditions

50 to 60% of all new infections environmental occur during the dry period (Bradley & green 2000)



Risk Factors

Colostrogenesis

Protective factors begin to become diluted as the transition to lactation begins

Immune suppression

Keratin plug may break down due to increased internal pressure

Prevention of Heifer Mastitis

(Pam Ruegg)

Feed pasteurized milk or milk replacer rather than waste milk.

Control flies – especially important in the control of *Staph aureus.*

Calve heifers in clean pens that have not been used to house sick cows.

.

Prevention of Heifer Mastitis

House growing and prepartum heifers in an adequately bedded area that is clean and dry and provides sufficient space for all animals.

Feed a well-balanced diet that enhances the immune systems of the heifers; Last 60 days

1000 IU per day vitamin E during and 4mg ofselenium.

Boost the immunity of heifers by using gram negative J-5 type vaccines

Prevention of Heifer Mastitis

Remember: Vaccines are not a substitute for inadequate management!

Problem herds may consider pre-partum teat dipping - daily spraying beginning 1 to 2 weeks before expected calving date or the use of external teat sealants beginning around the same time.

External Sealants

Advantages:

Easy to apply

Rapid drying

Non irritating

Disadvantage:

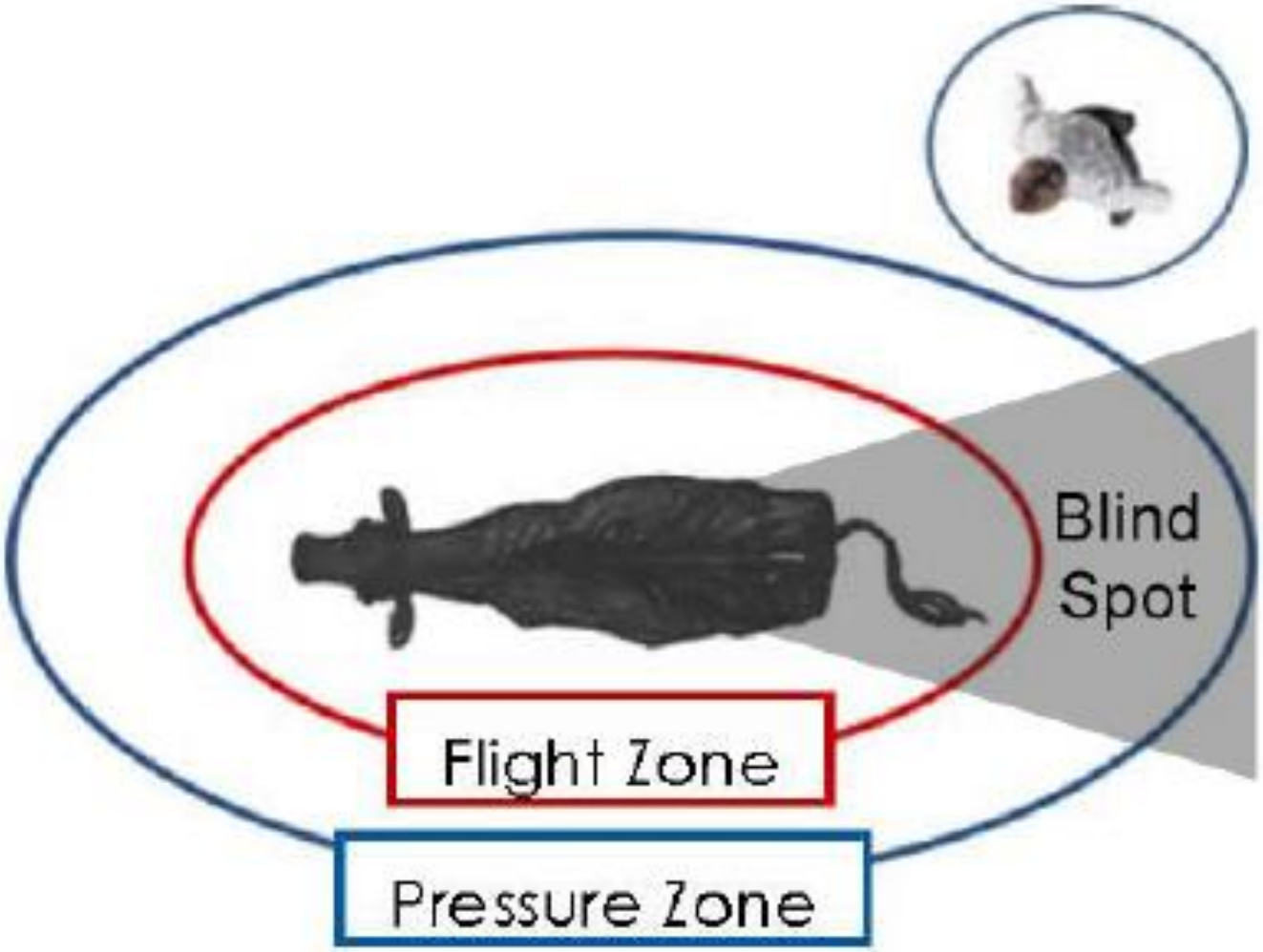
Shed off in 5 to 7 days, so need to be reapplied frequently: lockups are an advantage in close up pens.

Where do your close up heifers Live!

Where do you Heifers Calf?

Milking Fresh Heifers

- Oxytocin release is very important
  - Directly related to how relaxed the heifer is handled & prepared to be milked
  - Are you "working" your pre-partum heifers on a regular basis?
    - Teach them to pass by
    - Walk the pens at least daily, training & conditioning to being with handlers

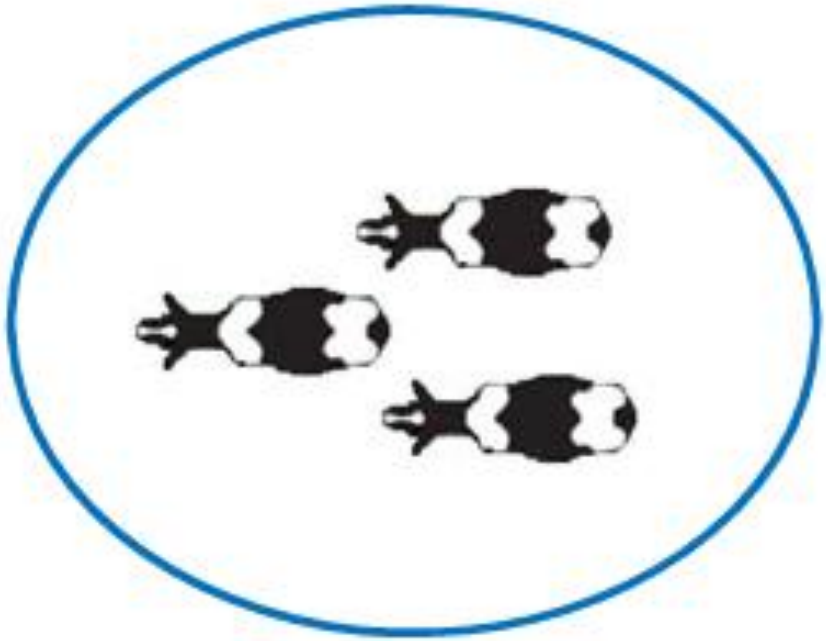

Blind
Spot
Flight Zone
Pressure Zone

Position

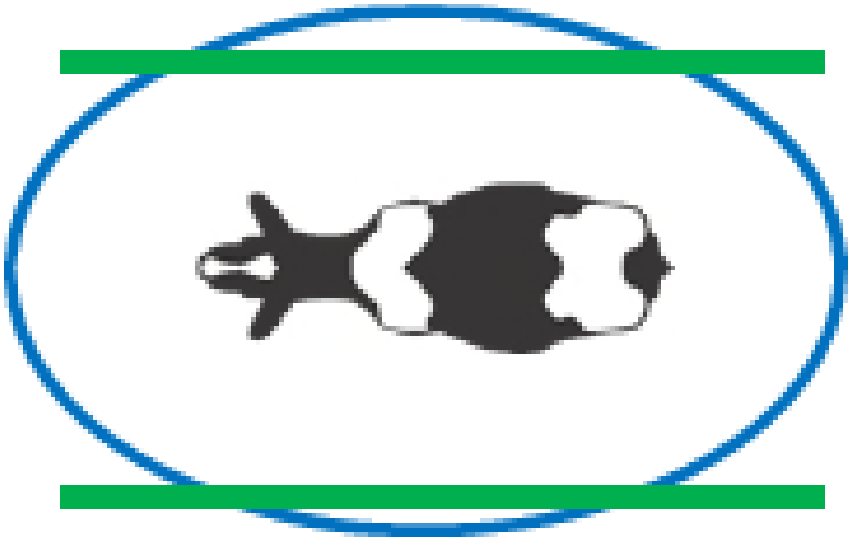
Timing

Angle

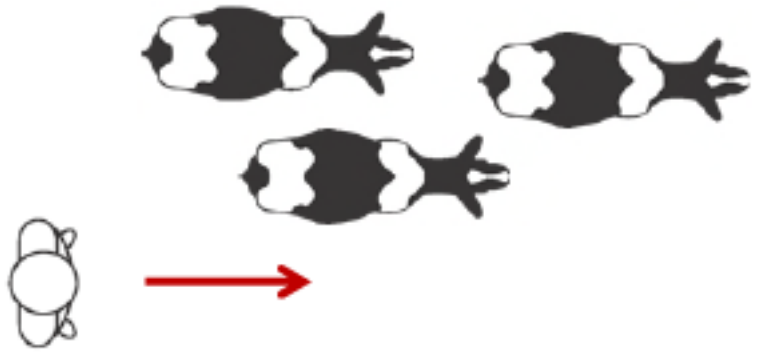
Speed



Teach cows to “pass by”

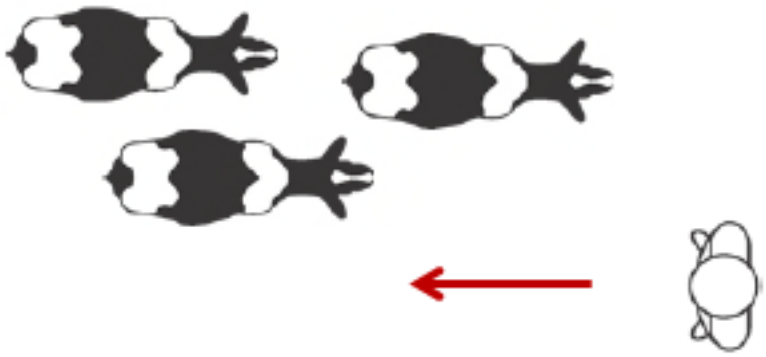


Walking with cows tends to slow them to their normal gait

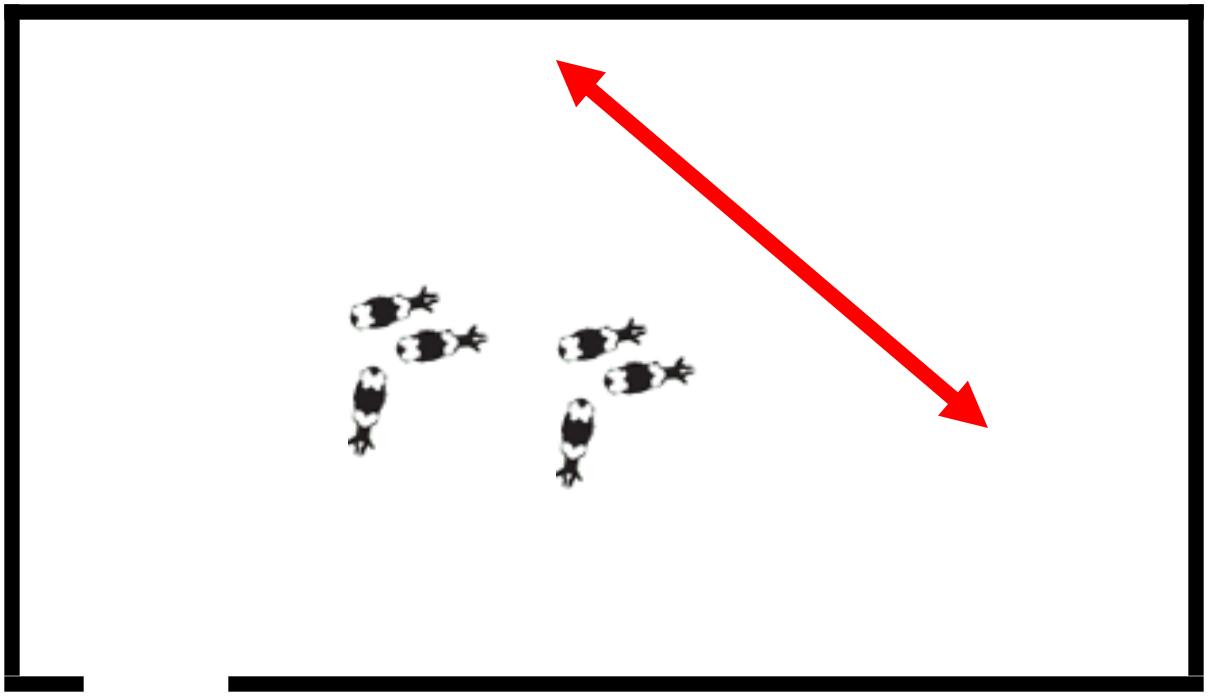


People walk 3-4 mph, cattle walk 2 mph
(4.8 – 6.4 kph) (3.2 kph)

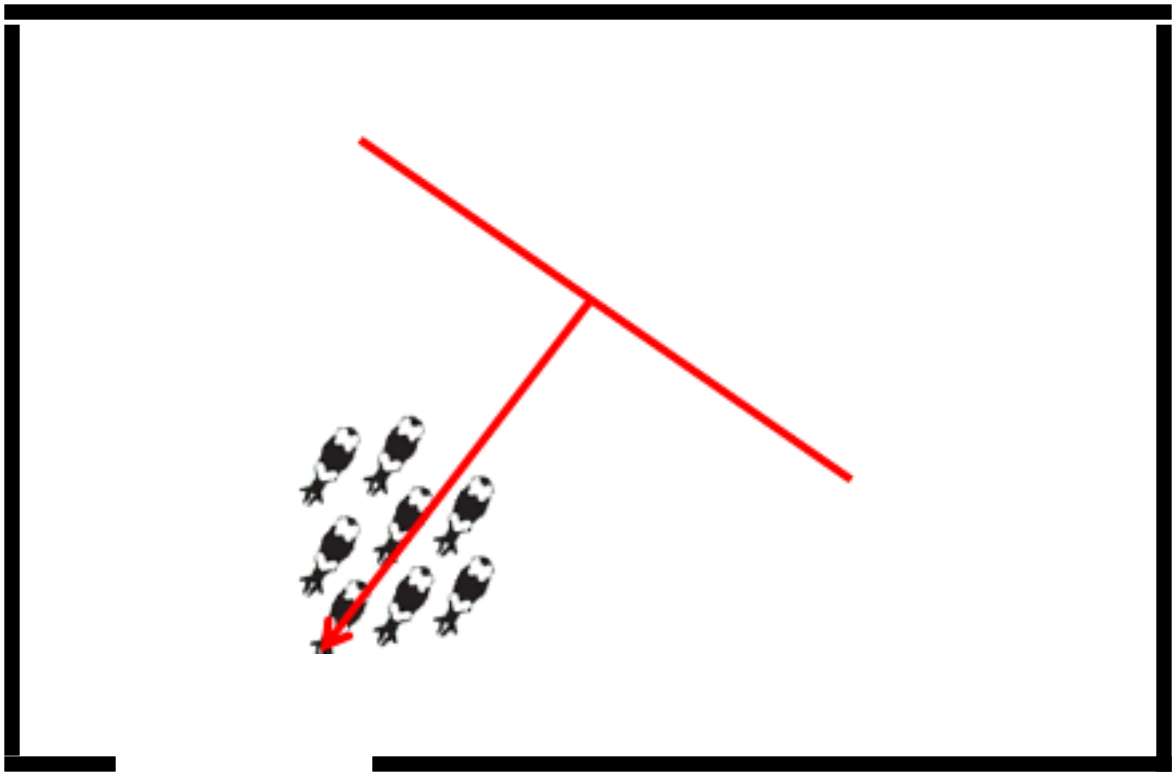
Moving against cows will speed them up!



To Move cows out a gate



Start the cows moving by working the back of the group



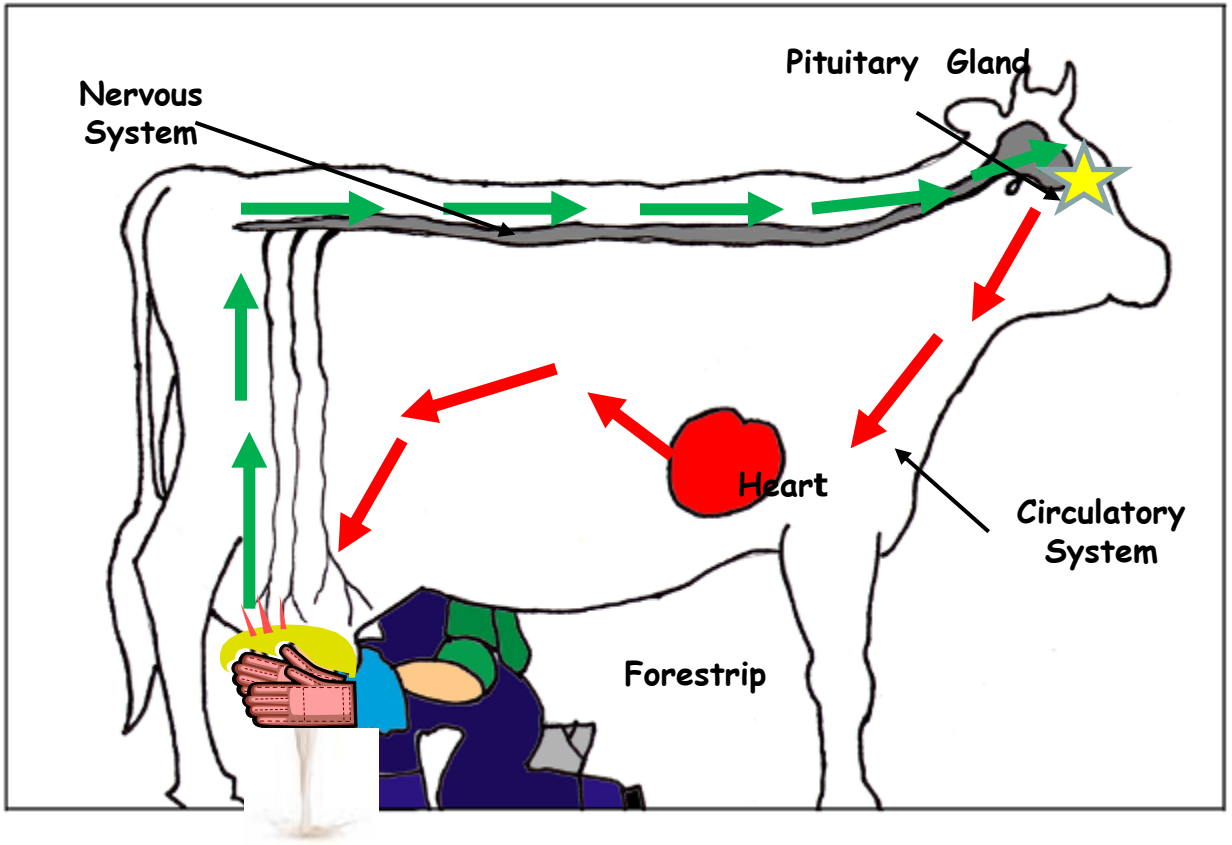
Parlor Training

- Move pre fresh heifers to the parlor at least weekly
- Open all gates & exits, move cows to holding pen, lock end of return lanes, and go away!
- If done 3 times per week, then on Fridays keep the exit gates closed

Milking Fresh Heifers

- Understand that teats will change dramatically over the first several milkings
  - Exposure to vacuum during milking will increase length & width of teats

Milk Letdown



1. Stimulation
2. Nerve Signal to the brain
3. Oxytocin is released
4. Transport through blood
5. Milk letdown

Physiology of the Udder

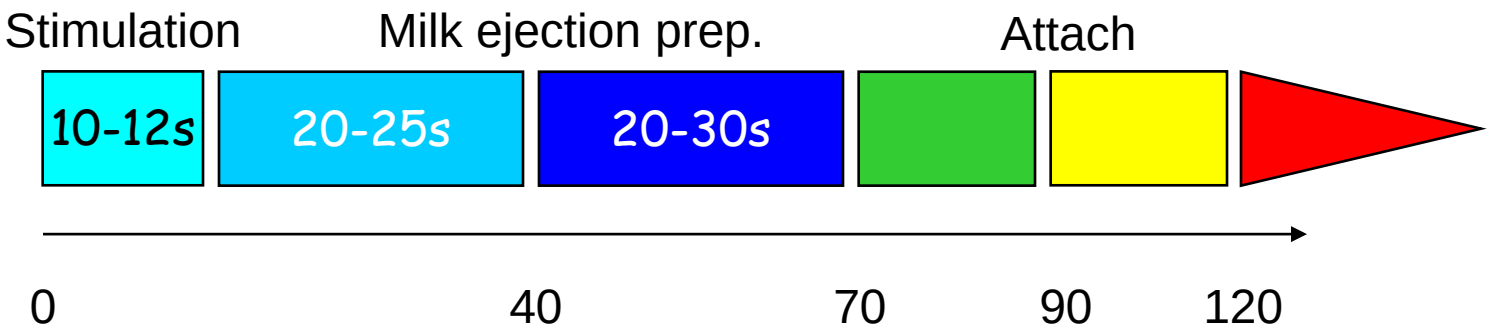
Manipulation of teats for 10-12 sec causes the oxytocin release (generally takes 15 to 18 seconds of total time)

Transport of the hormone by the blood to the udder

20-25s

Start of muscle cell contraction 20s, 30s + for full contraction

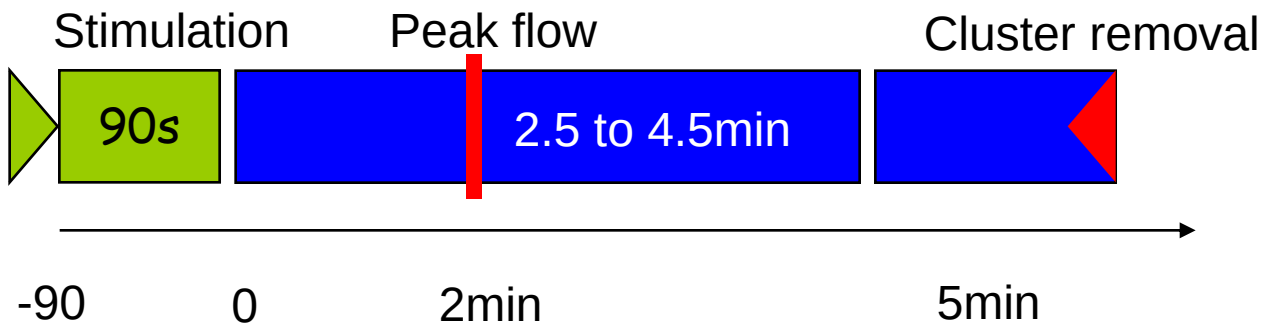
Complete letdown 90s after first contact with teats

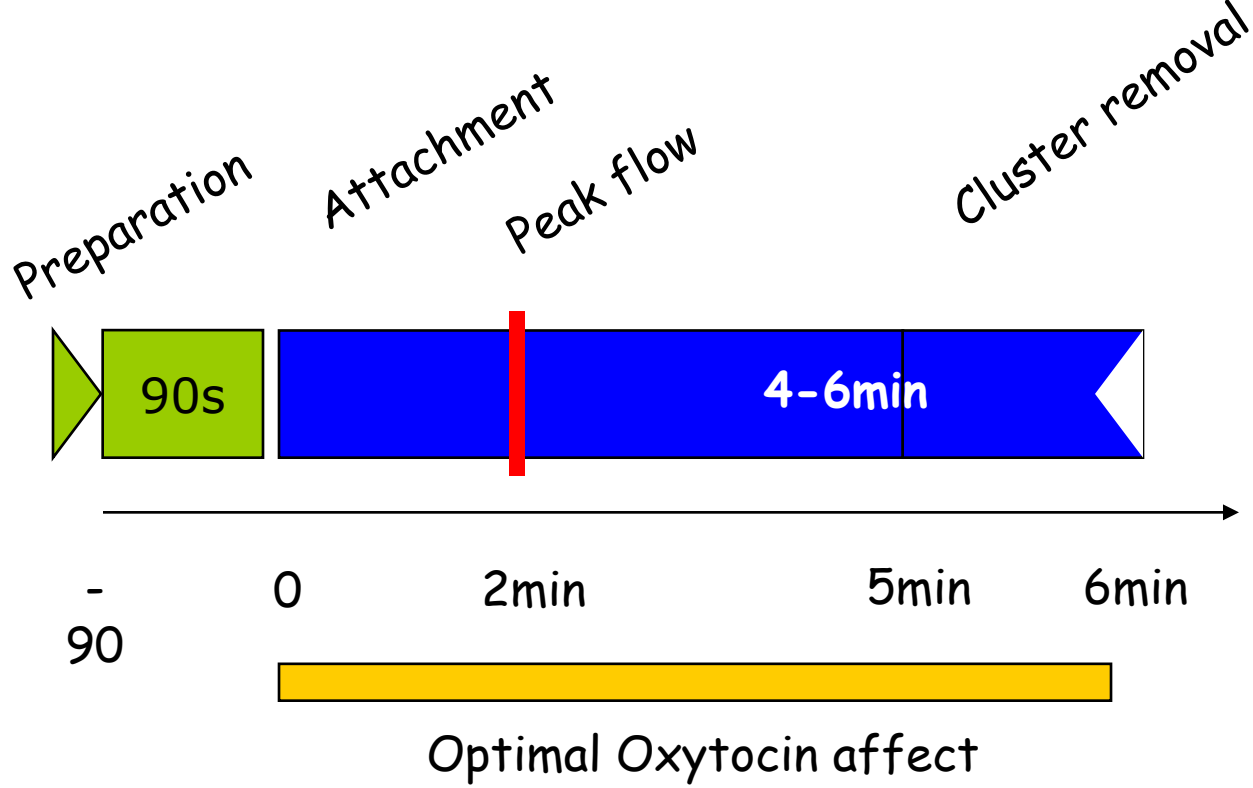


The half life of Oxytocin is between 4 and 6 minutes!

The goal of udder preparation is to properly stimulate and clean teats to optimize the effect of the oxytocin and to harvest the available milk

gently, completely, & quickly.





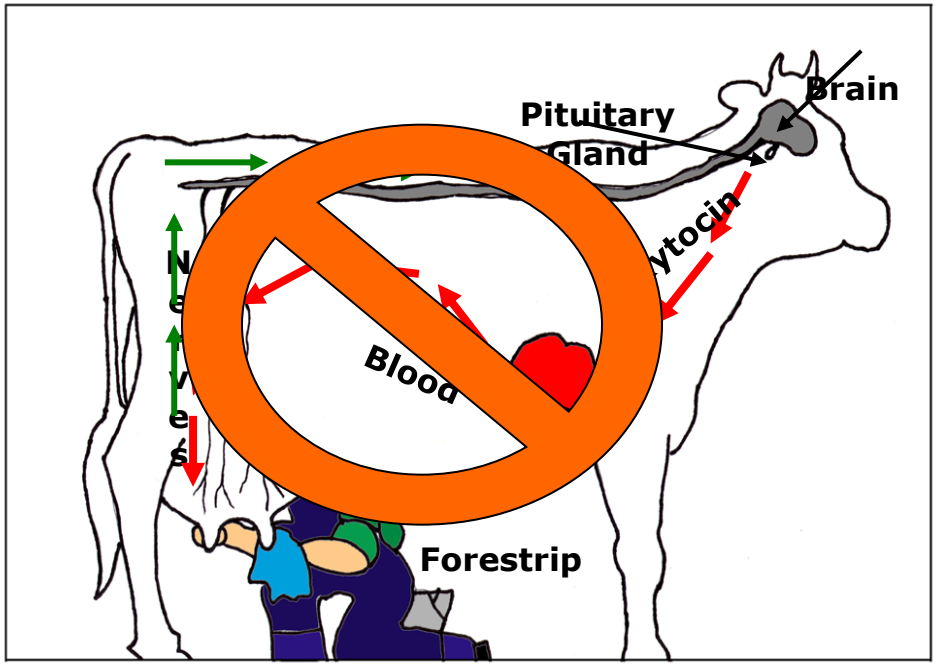
Timing Goals

10-12 seconds of stimulation or teat contact time

20-30 seconds of contact time for pre-dip

90 seconds from beginning of teat contact time to unit attachment

Obstacles for Milk Letdown



Stress is the number 1 enemy of oxytocin. Stress stimulates the adrenal gland to produce adrenalin (another hormone) which inhibits the effect of the oxytocin on the cells and stops milk letdown.

Excessive Noise
Physical Abuse
External Agents

Adrenaline release within ½ hour of milking will overcome oxytocin letdown effect!

Why is Teat Stimulation Important?

- Improves milk flow
  - nerves in teat skin cause loosening of the sphincter muscle and teat ducts
  - nerves in teats also lower threshold of myoepithelial cells to oxytocin

Milk Letdown Depends on Conditioned and Non-conditioned Stimulation

Non-conditioned = teat contact time

Conditioned = same routine for the cows and keeping everything constant in the parlor and holding pen

Remember cows are creatures of habit! They respond to consistent handling and procedures

Milking Fresh Heifers

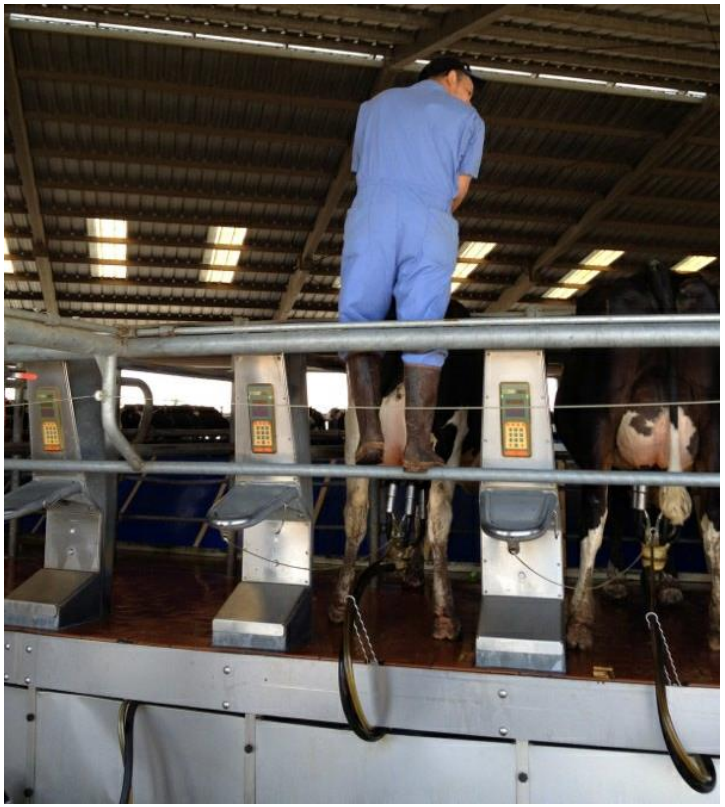
Make sure the dairy has some frozen colostrum if needed

Handle freshly obtained colostrum correctly!

- clean containers
- Cool quickly if not all fed

Milking Fresh Heifers

Do not use any mechanical devices or excessive force!



Milking Fresh Hiefers

Take your time!

Handle gently, speak softly, no yelling!

Clean & sanitize teats carefully

Understand the timing needed for oxytocin letdown

Use of Oxytocin

- Should be limited!
- If retained placenta at 12 hours, then 100 IU at that milking, 20 IU at each milking for 7 to 10 days.
- Use tuberculin 1cc syringes to minimize overdosing

Milking Fresh Heifers

Make sure the equipment is clean!

- Hoses
- Liners
- Buckets


2005 9 20


2005 9 20


2006

Milking Fresh Heifers

Same liners & pulsation rates & ratios as main barn if using floor pails or special needs parlor

- Guidelines for Pulsation all cows
  - B phase 480 to 500 milliseconds
  - D phase 210 to 215 milliseconds

Same peak milk flow claw vacuum as the parlor

Milking Fresh Heifers

- Closely observe milk flow into the claw, if flow stops remove unit!
  - Do not reattach unit
  - Consider a time limit for first 4 to 6 milkings of no more than 2.5 minutes

Milking Fresh Heifers

- If the heifer is "crazy" after calm handling, post dip and don't milk (use stored colostrum for the calf)
- At the next scheduled milking be calm and try again, if still "crazy" post dip
- Most if not all heifers will stand by the 3rd scheduled milking! Avoid the fights!

Milk quality Magic

- Decide to do the little things correctly every day!
  - Take an extra second to insure complete teat coverage of pre-dip
  - Take an extra few seconds to completely clean each teat end; twist & flip the cow towel
  - Take a few extra seconds to adjust every unit
  - Take a few extra seconds to insure complete coverage of post dip

Milk Quality Magic

Improved milk quality is about knowing where you are at & setting your sights to achieve a little more through closer attention to detail, more timeliness and greater thoroughness.

The pursuit of high milk quality revolves around the "little things" and training people

Story of 2 Dairies

- Both have 130,000 Bulk tank SCC levels
  - 1. Treats many cows,, discards milk from some quarters, culls many chronic high SCC cows
  - 2. Has a low new infection rate & therefore deals with few infected cows

Which manager has a better daily attitude?

Sometimes, even with the best of training, some individuals just don't get it!

Why was the cow lying backwards?


BouMatic
16.04.2009

What did you really SEE?


BouMatic
16.04.2009


19393
19393