

The Environment And Mastitis Control

Western Canadian Dairy Conference
Red Deer, Alberta

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What If the USA Lost the War in Iraq???





Don't under estimate the importance of the cow's environment

Cow comfort is #1 reason for HIGH or LOW milk production and CULL RATE!



Cow Comfort and Environment

1. Increased DM intake, increased production
2. Decreased environmental mastitis
3. Increased conception
4. Decreased foot problems

The only correct answer to most questions is:

“It Depends!”

LISTEN TO THE COW!



They always tell the truth or the real story!!

Listen To The Cows

1. Won't enter the parlor
2. Won't lay down in stalls
3. Swollen legs, hocks or injuries
4. Don't like to have teats touched

Cow Friendly Environment

1. Ventilation: All Four Seasons
2. Stall design and maintenance
3. Access to feed and water
4. Skid resistant walking surface

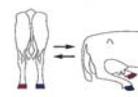
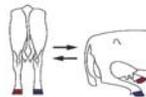






Does This Manure Matter???

Low Level Mud



Mature Cow 0-10cm

1st Lactation Heifer 0-10cm

Source Of Manure May Surprise You!

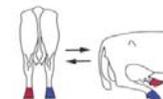
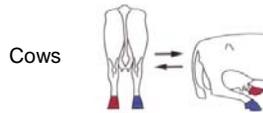
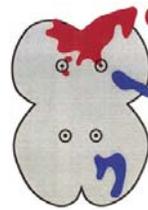


Scrapers Must Run Often



Source Of Manure

Medium Level Mud



Cows

Heifers

Fig. 2. Colored Zone : 0 - 20cm

Fig. 7. Colored Zone : 0 - 20cm

Let's not use weather as an
EXCUSE to mismanage your dairy



Bad Environment



Free Stall

Does not mean
“Free of Maintenance

Stall Protocol

1. Udder must be on clean/dry surface
2. Every milking scrape off wet area and cover with dry bedding
3. Less than 5% stalls wet or manure
4. Clean and dry stalls have less risk to new mastitis infections



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



Must scrape off manure every milking and cover



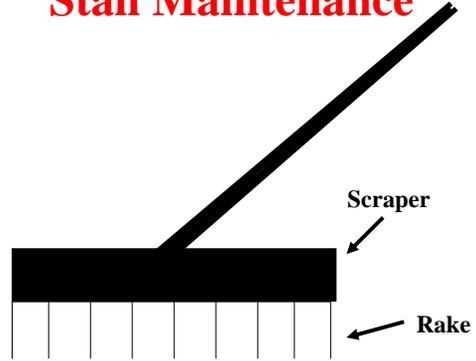
Cross Over Alleys Major Cause Of Dirty Cows

Free Stall Maintenance



MODIFIED RAKE/SCRAPER MAKES IT EASIER!

Modified Tool For Free Stall Maintenance



For Mattress dairies, a broom works the best!!

Free Stall Maintenance





Barn Yard Care Is Critical



Cows Must Not Have
Access To Manure!

Free Stall Barns Signs of a problem

How many lunge attempts to get up?

Are there shiny spots on the loop?

Are loops breaking off their supports?

Signs of Poor Cow Comfort



Signs of Poor Cow Comfort



Signs of Poor Cow Comfort



Signs of Poor Cow Comfort



Improper Lunge Space



Improper Lunge Space



Proper Lunge Space



Normal Lunge



Lunge Space



Many people will suggest as long as a cow can lunge straight forward, that is good enough!
LISTEN TO THE COW!!

Lunge Space



Give the cow every option and she will decide!
2 out of 3 cows prefer to lunge to the side!

Lunge Space

LATEST DATA SHOWS COWS THAT **DO NOT** HAVE SIDE LUNGE, THE HERDS WILL HAVE HIGHER SCC AND HIGHER CULL RATES

Proper Measurements for Proper Lunge Space



Most critical measurement 23-25 cm maximum

Outside Wall Lunge Space Is Also Important



What are the cows telling you?

Alternatives to Improve Lunge Space

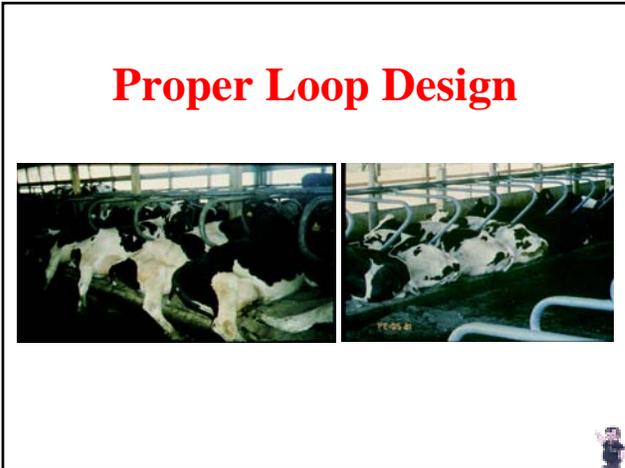
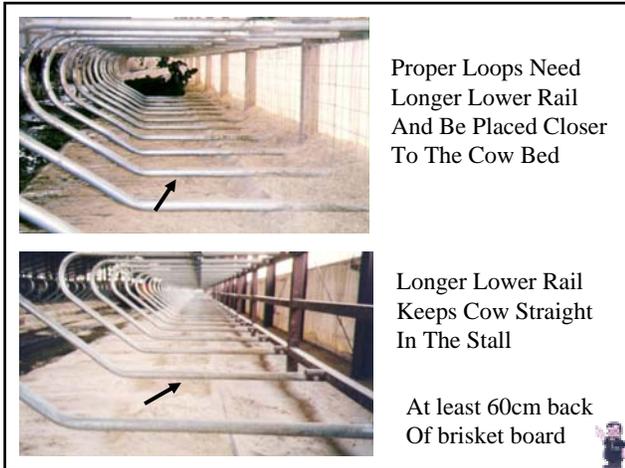
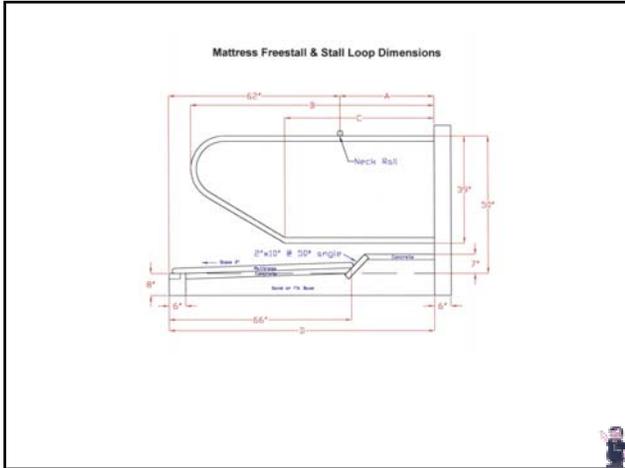


Alternatives to Improve Lunge Space



Alternatives to Improve Lunge Space





Proper Loop Design

The facts:

Lower cull rates

More comfort

Less injuries



Cow Comfort

Brisket Board Benefits

1. Cow position in stall
better so cow cleaner
2. Cow gets up easier, it
braces her as she lunges



Cow Comfort

Brisket Board Dimensions

1. 168-173 cm from
back of curb
2. 35-40% above bedding
level with rest below



Cow Comfort

Brisket Board Failures

Board Too Large
Board Mounted Too High
Board Too Far Forward



Improper Brisket Board Location



Too far forward >173 cm

Improper Brisket Board Location



Mounted Too High

Low Neck Rails = Discomfort



Less than 112 cm

Low Neck Rails = Discomfort



Less than 100 cm

OLD FACILITIES

You don't have to tear down what you already have.

You just need to modify it to improve cow comfort!

Remodel Stalls to Improve Cow Comfort



Remodel Stalls to Improve Cow Comfort



Remodel Stalls to Improve Cow Comfort



Remodel Stalls to Improve Cow Comfort



Remodel Stalls to Improve Cow Comfort



Manure Piles Under Loops; Common Sign of Wide Stalls



Wide Stalls Are Not The Answer
Especially If We Talk Quality Milk!!

Wide Stalls



Greater than 118 cm wide

Wide Stalls



Wide Stalls

**



Upside Down Loops



It is a BIG mistake!

Neck Rail Location

168 cm



Backs of Stalls Are Dirtier

Alley Width

Reducing alley width is a poor choice of ways to reduce cost.

Cow Alley 4 meters (Many 3 meters)

Feed Alley 5 meters (Many 4 meters)

Alley Width

Key Reason For Dirty Cow Legs

When narrow, more manure splashed on animal's legs regardless if over crowding or not!

Alley Width

Cow Alley



NOTE: After 12 hours, manure load minimal!
Approximately 25% total manure

Alley Width

Feed Alley



NOTE: After 12 hours, manure load heavy!
Approximately 75% total manure



Manure Creates Mastitis



Sand is God



Sand is the Best Bedding For The Quality Milk Production

All other bedding options
have an increased risk to
new infections!

Sand is the Best Bedding

After that, you choose
your own poison!

The True Value Of Sand

Issue	Sand	Mattress
Lameness	15%	25%
Hock/Legs	10.4%	24.4%
Culling	26%	38%
Milk Production	26,058	24,064

VALUE: \$12/cwt and 100 cow dairy
Milk \$23,928
Lameness \$7,400
Culling \$ 18,000
TOTAL: \$ 49,330 \$500/cow/year

How much are manure pumps????

The True Value Of Sand

**Worth \$1.66 more income
per hundred pounds
of milk produced higher milk
price when compared to
mattress herds.**

Sand is Comfort



Sand is Comfort



**Properly Installed Tires
Reduce Sand Use By
25-35%!**



**Tires Must Be Hand
Packed With Sand
And Be 7-10 cm
Below The Curb**

Improper Tire Placement Causes Poor Cow Comfort



Decrease Sand Use “Sand Trap”



Decrease Sand Use “Sand Trap”



University of Georgia Study NMC 2003 Proceedings
showed best success with “Sand Trap” in reducing
sand use and best cow comfort

Sand in Stanchion And Tie Stall Barns

- ✓ Cleaner Cows
- ✓ More Comfort
- ✓ Better Footing
- ✓ Lower Somatic Cell Counts
- ✓ Less Clinical Mastitis
- ✓ Less Leg Injuries
- ✓ Less Stepped on Teats

Sand in Tie Stalls



Sand in Tie Stalls



Mattress Stalls



Mattress Stalls



Mattress Stalls

- Never were designed to eliminate bedding
- Loose cushion effect in 2-3 years
- Only those selling suggest no bedding to justify high cost.
- Dirtier cows
- More hock and leg injuries

HOWEVER!

Mattress Stalls

- If managed correctly, they can work well
- Fantastic for tie stall or stanchion barns
- Extra padding
- Bedding keepers
- 90 plus pounds of milk
- Under 150,000 SCC

Organic Bedding



Wood Products Must Be Dry and Clean

Sawdust bedding

- Coliform cfu/g > 10^6 =  Coliform mastitis



Bramley & Neave 1975

Coliforms in bedding

cfu/g

Sawdust > Shavings > Straw

52.7×10^6 6.6×10^6 3.1×10^6

Rendos et.al. 1975



Bacteria on teats

Coliform cfu/swab

Sawdust > Shavings > Straw
127 12 8

Rendos et.al. 1975



Klebsiella spp. in bedding

cfu/g

Sawdust > Shavings > Straw
 4.4×10^6 $.66 \times 10^6$ $.06 \times 10^6$

Rendos et.al. 1975



Bacteria on teats

Klebsiella spp. cfu/swab

Sawdust > Shavings > Straw
11 2 1

Rendos et.al. 1975



Streptococci in bedding

cfu/g

Straw > Sawdust > Shavings
 53.0×10^6 11.0×10^6 8.6×10^6

Rendos et.al. 1975



Bacteria on teats

Streptococci cfu/swab

Straw > Shavings > Sawdust
 2064 717 383

Rendos et.al. 1975

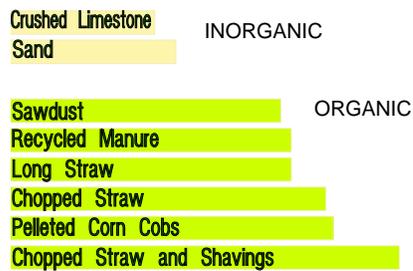


Bacteria in Used Bedding

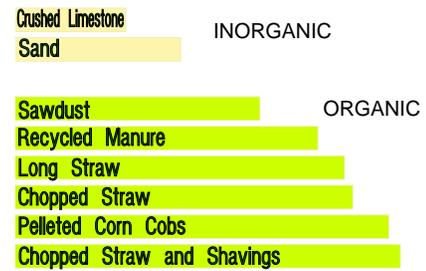
Bacteria	Organic	Inorganic
	cfu/g x 10 ⁶	
G(-)	12.59	2.510
Coliform	1.58	.500
Klebsiella	.04	.003
Streptococci	31.62	6.310

Hogan et al. JDS 1989: n=9 farms

Coliform Bacteria in Bedding



Streptococci in Bedding

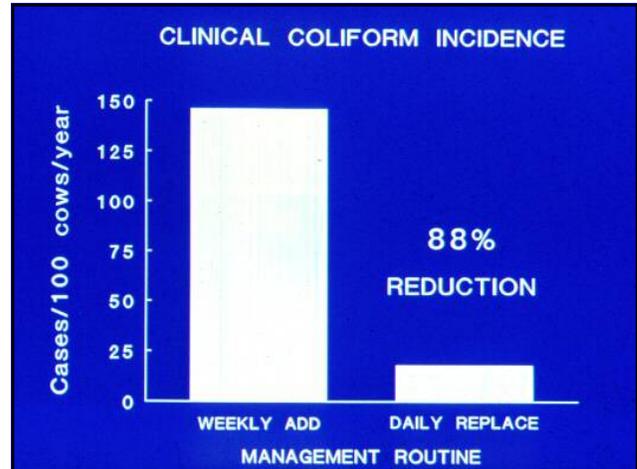


UNDERSTANDING YOUR BEDDING

The more fines in the bedding,
The higher the bacteria
numbers



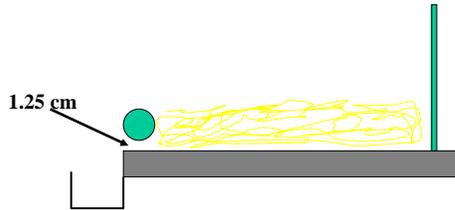
As Bedding is Allowed
to Build Up,
Environmental Bacteria
Numbers Increase.
Changing Bedding Often
is Best.



**MIXING TWO
BEDDINGS
TOGETHER
CREATES HIGHER
BACTERIAL LOADS**

**ADDING FRESH
BEDDING TO
OLD BEDDING
IS LIKE ADDING
GAS TO A
SMOLDERING FIRE!**

Organic Bedding



Bedding Keepers Provide More Comfort
If Managed Properly. (Clean and Dry)



Calcium Carbonate Reduces Bacteria



Be sure to cover lime with bedding!



Sanitizing Mattress Stalls

- Scrape Back 30 inches (75 cm) of stall
- Spray Stall with Tek-trol* weekly
 - 300cc per 3 gallons (11.3 liters) of water
 - Does 125 stalls
- Pull fresh bedding over sprayed area

* Biotek Industries 404-799-2050



Dry Period Housing OFTEN SUCKS!



Typical Dry Cow "Bedding Pack"



Contamination or Natural Exposure??



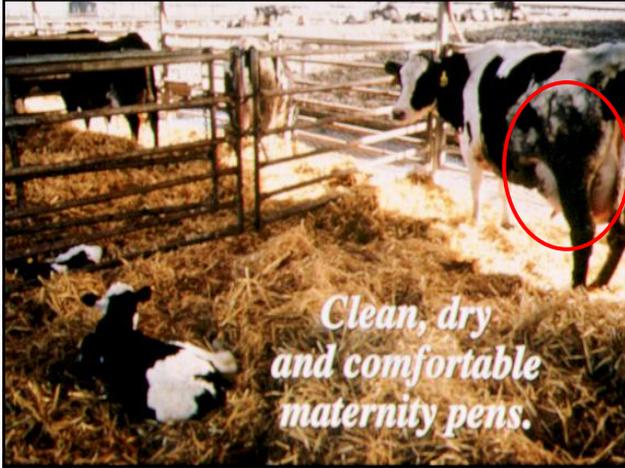
Pre-fresh Inoculation!!



Dry Cow Environment

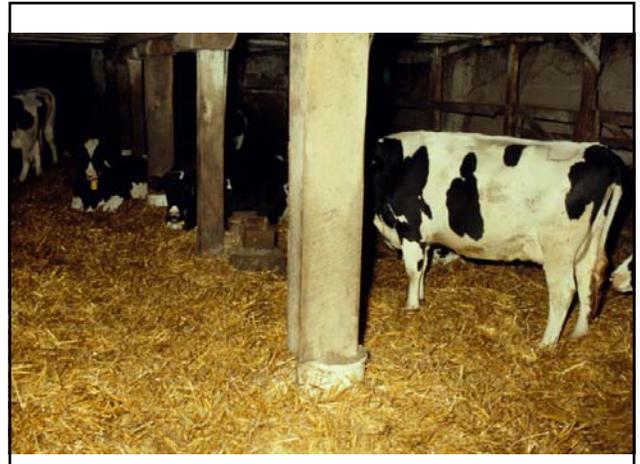


Is there a better alternative?



Bedding Packs are Usually Manure Packs

- Do the knee drop test



Bedding Packs:

- 150 square feet per animal
- 16-17 square meter per animal
- Control bedding – remove pies



Bedding Packs Require Lots Of Labor and Lots and Lots of Bedding

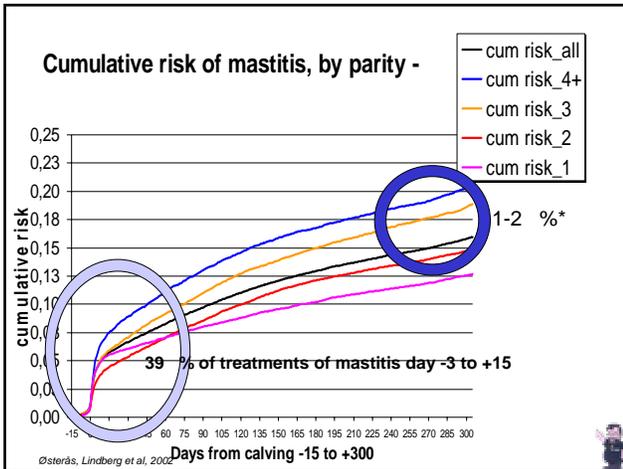


Sand Calving Pens are Great, however, They too need lots of labor and care!

The Sooner Every Dairy Farm Understands There is a HUGE Difference Between Calving Pens and Pre-Fresh Packs,

The Better Their Milk Quality Will Be!

Over 65% of all clinical mastitis that occurs in the first 120 days of lactation are from the pre-fresh area and calving pens.



Calving Pens:

On less 2 hours prior to calving,
off within 24 hours after
calving.

All in and all out on bedding

Fresh Animal Mastitis

What is SCC at First Test?
Should be less than 4.0

Should have less than 15% of
animals above 200,000 on first
test after calving.

First Test Linear Scores Or SCC

**Animals that calve with LS over 3.9
or SCC >200,000 give 1400 less
pounds (640kg) of milk in the first
lactation than heifers that calve with
LS less than 4.0 or under 200,000
SCC**

200,000+ data set

**Cows With Cleaner
Udders Can Be Milked
Faster!**

Flaming Udders



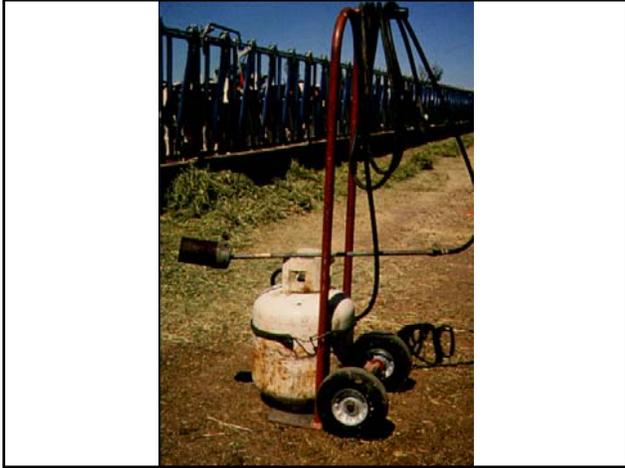
Makes a Major Difference in Milk
Quality and Parlor Performance

Flaming Udders

**Flame Udders On Every Animal
When They Enter
The Pre-Fresh Group**

**Flame All Animals As Needed During
Lactation**





The Super Torch



Parlor or Tie Stall Version

Stanchion Flaming



Parlor Flaming



Parlor Flaming There's Always A New Way



Bad Place To Do Demonstration On Flaming!!

OOPS!!

Cow Cleanliness

Cows must be kept
clean, dry, and comfortable
24 hours a day!

REMEMBER:
Always listen to the cows!!!



World Record Milk Production Heifer
Tru-Blu Duster Ihm Gem 2yr 3mo
365days 61,030 milk, 2,368 BF (3.9%), 1,930 Pro (3.2%)

