Environmental mastitis management

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Environmental mastitis pathogens
They are everywhere where conditions allow the bacteria to survive or grow:

- Water
- Manure
- Beds
- Hands
- Alleys
- Indoors and outdoors
If they are everywhere, what can we do?

1. Reduce the conditions for bacteria survival

2. Reduce the risk of bacteria invasion of the udder at milking

3. Increase the capacity of the cow to fight infections
1. Reduce conditions for bacteria survival and dry

- Scraping manure
- Good ventilation
- Dry beds
- Clean lots
2. Reduce exposure to teat ends

• There are many pathogens in the environment, but how well do we do at reducing the exposure of them to the critical area of the teat ends?

• While we can’t see bacteria, we can see the dirt that often carries bacteria.
Udder hygiene
Relationship between the hygiene score of cattle and indicators of mastitis.

Udder Hygiene Score
1 = Free of dirt
2 = Slightly dirty; 2 – 10% of surface area
3 = Moderately dirty; 10—30% of surface area
4 = Very dirty; > 30% of surface area

(Schreiner and Ruegg, 2003)
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This work has been validated by others.

- We can link dirty udders and mastitis.
- *SCC* is higher in dirty cows (UHS or 3 or 4)
- Intramammary infections higher in dirty COWS (UHS or 3 or 4)
- More mastitis pathogens (environmental and contagious) recovered from milk samples of dirty cows vs. clean.
Still, in Michigan, we have dirty cows; 46% of these herds had > 30% of cows with UHS of 3 or 4.

41 herds; Erskine and Moore-Foster, 2016
What factors impact cleanliness

- Bedding type
- Bedding maintenance
- Proper stall design
- Frequency of scraping alleys
- Cow density
- Management of moisture in barns
- Ventilation
Interesting findings from a Brazilian study
Sant’Anna and da Costa, JDS 2011

- 2 farms; 250 cows and 130 cows
- Data from a total of 532 cows
- Cows not housed in stalls – outdoors pens and grass paddocks
- Monthly cleanliness scores for 9 months
- Individual SCC 2 days after cleanliness
Sant’Anna and da Costa, JDS 2011

- Seasonality is important – Hygiene scores worse in summer.

- Some cows are messy, some are clean regardless of season – Some cows consistently clean indicating certain behavioral patterns favored cleanliness.

But good management is more important than season – Provide clean places for cattle to lie.
Based on that, focus on management

Take a hygiene tour of your farm:

• Look for accumulation of manure
• Check for bed dryness
• Look for wet conditions
• Look as a way to find areas for improvement, not to assign blame
Hygiene tour:

- Begin with the dry cows
  - The period of 3 weeks prior to calving is a critical time
  - Leaking milk, wet beds
  - Overcrowding impacts overall health and cleanliness

- Pay special attention to the calving pens
  - Cows are vulnerable
Hygiene tour:

- Cow barn
  - Barn type and dimensions
  - Depth of manure in alleys
  - Splashing during scraping
  - Splashing from cows running
  - Cow beds
  - Fly control
Hygiene tour:
Additional cow areas:
- Alleys
- Walkways
- Parlor holding area
- Parlor

Heifer pens:
- Heifers can get infections pre-calving
Situational Management

When the situation (weather or other) favors bacteria, consider temporary adjustments:

• Seasonal increase in manure scraping and bedding
• Seasonal adjustment of foot bath water level
• Seasonal use of teat end sealants (for dry
3. Reduce the risk of bacteria invasion of the udder at milking

Pre-milking preparation

- Sanitize teats before milking
- Wipe across the teat ends
- Stimulate teats well and provide for milk let-down
Check teat end cleanliness
4. Increase the capacity to fight infection

**Good nutrition**
- Vitamins A and E
- Trace Minerals Selenium, Copper and Zinc

**Dry cow treatment**
- Will reduce new infections caused by environmental Streps during the early dry period.

**Vaccination**
- J-5 bacterin
Prevention is key

• The focus with disease should always be on prevention

• It is much easier and less expensive to prevent disease rather than treat it
But prevention is not absolute

• By its nature we cannot prevent all contamination of cows from the environment

• Monitor the rate of new infections

• Watch the bacterial levels in milk: Coliform Count and Total Bacteria Count

• Coliform counts are an indicator of environmental contamination
Goals:

Coliform Count
• US minimum Standard: < 100 cfu/ml
• Most farms routinely < 50 cfu/ml

Bacteria Count
• US minimum Standard: < 100,000 cfu/ml
Udder hygiene

• It is an animal welfare indicator

• It is a milk quality issue

• As well as a mastitis issue
Environmental mastitis pathogens

1. Reduce the conditions for bacteria survival

1. Reduce the exposure to the teat end

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Thank you!

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