



# Dairy Herd Health & Screening Initiative: What's in your bulk tank?

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Agriculture and  
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## Outline

- \* Dairy Herd Health & Screening Initiative
  - \* Introduction
  - \* Methods
  - \* Results
  - \* Discussion
- \* Environmental Sampling
- \* Questions



## Production Limiting Diseases

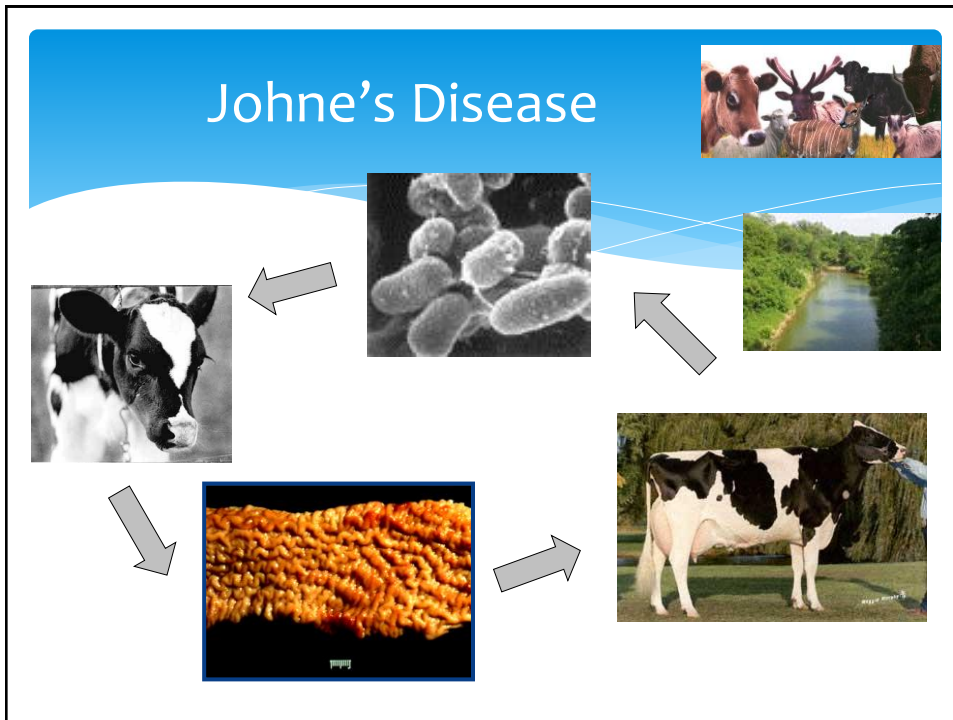
- \* Johne's disease
- \* Bovine leukosis virus (BLV)
- \* Bovine viral diarrhea (BVD)
- \* Contagious mastitis
  - \* *Staph aureus*
  - \* *Strep ag*
  - \* *Mycoplasma bovis*



## Johne's Disease

- \* *Mycobacterium avium* subsp. *paratuberculosis* (MAP)
- \* Long-term infection in the small bowel
- \* Progressive weight loss and diarrhea



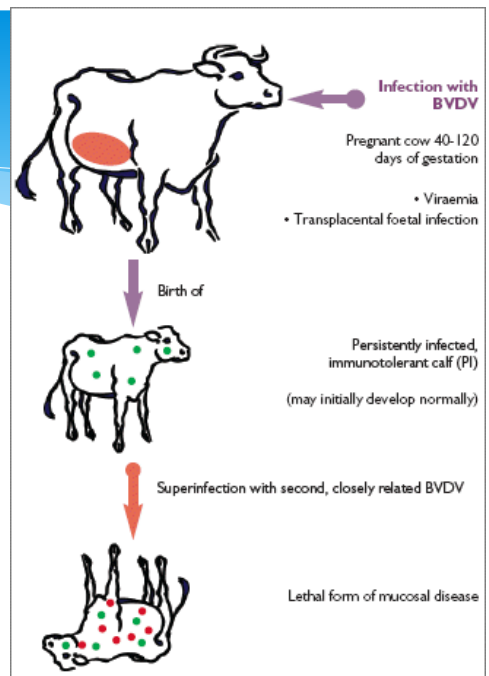


## Bovine Leukosis Virus

- \* Blood-borne retrovirus
- \* Tumors
  - \* Lymph nodes, uterus, heart, abomasum, spleen, kidneys and brain
- \* Production loss:
  - \* Reduced milk production,
  - \* Condemned meat at slaughter,
  - \* Lost marketing opportunities
    - \* Sale of replacement stock, bulls to AI or embryos, domestically and to international markets

## Bovine Viral Diarrhea

1. Persistent infections
  - \* Main reservoir
2. Transient infections
  - \* Most common
    - \* Respiratory problems
    - \* Infertility and abortions
    - \* Reduced milk production
    - \* Early culling



## BVD – Mucosal Disease



## Contagious Mastitis

- \* Well adapted to survival and growth in the mammary gland
- \* Infections last weeks, months or years
- \* Infected gland is the main source of these organisms
- \* Transmission to uninfected quarters and cows occurs mainly during milking time



## Objectives

- \* To determine how common these production limiting diseases are in SK dairy herds
- \* To help producer and veterinarians develop best management plans to deal with these diseases

## Methods

- \* A total of 171 bulk tanks were sampled in July 2012
- \* CanWest DHI
  - \* Johne's disease – Hyper-ELISA
  - \* BLV – ELISA
  - \* BVD and contagious mastitis - PCR



## Results

Pathogen	Result	Number	%	Total Positive	%
Johne's Disease	High	6	4	88	51
	Pos	51	30		
	Susp	31	18		
	Neg	83	49		
BLV	Pos	168	98	168	98
	Neg	3	2		
BVD	Pos	3	2	3	2
	Neg	168	98		

## Results

Pathogen	Result		Number	%	Total Positive	%
Staph aureus	Pos	+++	1	1	114	67
		++	8	5		
	Neg	+	105	61		
			57	33		
Strep ag.	Pos	+++	0	0	1	1
		++	1	1		
		+	0	0		
	Neg		170	99		
M. bovis	Pos	+++	0	0	4	2
		++	2	1		
		+	2	1		
	Neg		167	98		

## Discussion

- \* Bulk tank screening
  - \* Convenient method of testing
  - \* False-negatives
    - \* Infected cows dry
    - \* Dilution
    - \* Shed periodically or at too low levels
- \* Repeat testing?



## Discussion

- \* Production limiting disease study (*Vanleeuwen et al., 2005*)
  - \* Herd prevalence in Saskatchewan dairy herds
    - \* BLV - 89% (81-97%)
    - \* Johne's disease - 43% (27-59%)
    - \* BVD - 29% (13-45%)
- \* CanWest DHI
  - \* Johne's disease – 28%

## Discussion

- \* Canadian Bovine Mastitis Research Network  
(n=282 herds) - *Olde Riekerink et al. 2007*
- \* *Staph. aureus*            73%
- \* *Strep. agalactiae*    1.8 %
- \* *Mycoplasma spp.*    0 %



## Environmental Screening

- \* 6 manure samples per herd
  - \* Composite manure samples – alleys, manure storage, etc.
- \* Tested for Johne's disease (culture & PCR)
  
- \* 80 herds sampled to date
  - \* All herds in SK
- \* Results to come...
- \* Help establish management plans

## Take Home Points

- \* Johne's disease, leukosis and *Staph aureus* are common infections
  
- \* BVD, *Strep ag* and *Mycoplasma bovis* are less commonly found in bulk tank milk samples
  
- \* A negative test result doesn't mean your herd is free of that particular disease!

# Acknowledgements

\* Canadian Agricultural Adaptation Program (CAAP)



# Questions



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# Milk Iodine

- \* Range of <10 ppm to 3937 ppm
- \* Average - 258 ppm
- \* 93.5% of dairy herds below 500ppm

- \* Risk factors:

1. Feed (>1.6 ppm)
  - \* Spraying iodine
  - \* 3x
2. Milking practices

