

Cornell University  
College of Veterinary Medicine

Quality Milk  
Production Services

New York State  
Department  
Of Agriculture  
And Markets

## Bulk Milk Surveillance Program

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## Value of Bulk Milk Surveillance

- Commitment of the dairy industry and government to animal health, food safety, milk quality and emergency preparedness.
- Assist the \$1.8 billion dairy industry with an early detection and monitoring system for producers
  - animal health
  - zoonotic pathogens
- Assure everyone that wholesome milk is harvested from healthy cows.

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## Why Bulk Milk?

- Easy for producer
- Screening of many lactating animals at once
- Product that goes to processor and consumer
- Capitalize and build partnerships around existing infrastructure
  - Existing logistic network of cold transport
  - NYSCHAP Program



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## Limitations of Bulk Tank Testing

- No correlation between number of positive animals and level of detection in bulk tank milk
- One "supershedder" can produce as many organisms as a group of low-level shedders
- Animal-level follow up is needed to assess number of positive animals

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## Your Options

- Animal Health Pathogens
  - Mastitis Pathogens, BVD
- Foodborne and Zoonotic Pathogens
- Milk Quality Parameters
- Emergency Preparedness



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## Animal Health Pathogens

- BVDV (bovine viral diarrhea virus)
- *Salmonella*
- Johne's Disease
- Mastitis Pathogens

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## BVD

- Costly diseases of cattle
  - Reduced reproductive performance
  - Increased premature culling
  - Decreased milk production
  - Depressed immune system → other diseases
  - Abortion



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## Foodborne and Zoonotic Disease

Disease in humans from food (foodborne)  
or contact with animals (zoonotic)

- *Listeria monocytogenes*
- *Salmonella*
- STEC (*e.g. E. coli* 0157:H7)
- *Campylobacter*-under development
- Q-fever

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## *Salmonella*

- Potentially resistant to a wide range of antibiotics (e.g. *Salmonella* DT104)
- Diarrhea
- Calf mortality
- Communicable between animals and humans
- Control recommendations available



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## *Listeria monocytogenes*

- Animal health - sheep, cattle
  - abortion
  - sepsis
  - encephalitis
- Public health - humans
  - abortion
  - sepsis
  - encephalitis
- Silage quality key in prevention

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# Mastitis Pathogens

- Contagious pathogens
  - *Streptococcus agalactiae*
  - *Staphylococcus aureus*
  - Mycoplasma
- Other pathogens
  - Streptococci
  - Coliforms
  - Prototheca
  - other aerobic micro-organisms.



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# *Staphylococcus aureus*

- Contagious mastitis in cattle
- Decrease in milk quantity
- Decrease in milk quality
- Poor response to treatment
- Penicillin resistance



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## *Streptococcus agalactiae*

- Highly contagious mastitis in cattle
- Decreased milk production
- Large increase in bulk tank somatic cell count
- Impact on shelf life due to SCC
- Potential increase in SPC



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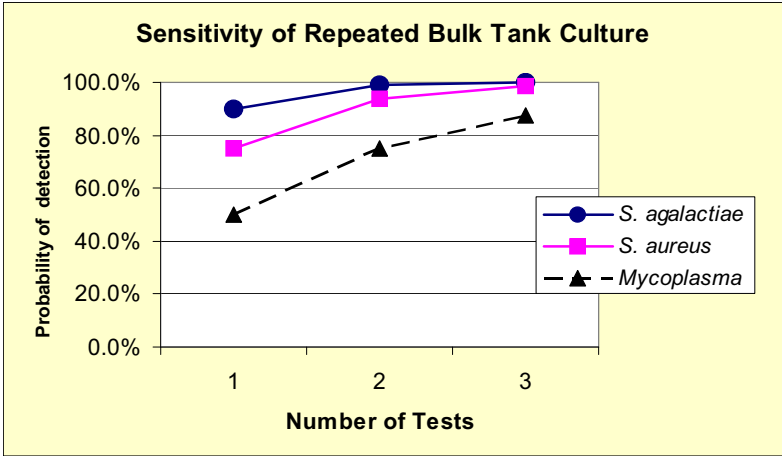
## Mycoplasma

- Calves
  - otitis media - head tilt
  - polyarthritis - swollen joints
  - pneumonia
- Cattle
  - Mastitis
  - arthritis
- Contagious
  - Respiratory secretions
  - Milk
- No response to treatment

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# Example: Mastitis Pathogens



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# Bulk Milk Surveillance Project Enrollment

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## Enrollment into the Bulk Milk Database Program

- Producers talk with their veterinarian about:
  - what pathogens they want to test
  - *frequency* of testing
- Dairy producers can sign up:
  - With QMPS staff member
  - Herd veterinarian
  - NYSCHAP Veterinarian

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## Email/Fax

- Once an event has been scheduled, an email/fax is sent to:
  - Hauler
  - Producer
  - Cooperative
  - QMPS

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# Sample Transport from Farm to Lab

- The normal route of sample submission is:
  - Hauler takes an extra sample with lime green vial and producer sticker attached
  - Sample then goes to milk plant or hauling location and is put into the Dairy One Courier System
  - Once sample arrive at Ithaca QMPS, sample(s) are sent to appropriate laboratory

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# What if You Test Positive?

NYSCHAP - Salmonella Module - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Search Favorites Print Mail

Links Address http://nyschap.vet.cornell.edu/module/salmonella/salmonella.asp

**New York State**  
**Cattle Health Assurance Program**

Animal Health • Food Safety  
Environmental Stewardship

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Module

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Home

Welcome to the Salmonella Module

Section 1 [Salmonella Module - Fact Sheets](#)  
General information and control points for preventing Salmonellosis

Section 2 [Salmonella Module - Forms](#)  
General and outbreak risk assessments

Section 3 [Salmonella Module - Slide Sets](#)  
Power Point presentations on general information and case study

**For each test, we have recommendations for acting on a positive result.**

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## Follow-up

- We encourage producers to share testing results with herd veterinarian

**All results are CONFIDENTIAL! However, with producer permission, results can be sent directly to herd veterinarian, NYSCHAP veterinarian or other farm consultants.**

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## What Bulk Milk Told Us

Your Herd?

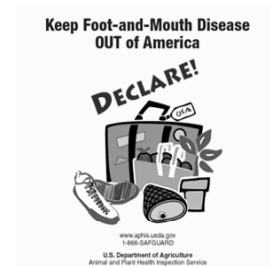
Test	Bulk Milk Surveillance NY	Bulk Milk Surveillance NAHMS (USA)
<i>S. Aureus</i>	22%	41%
<i>Mycoplasma</i>	0	6.5%
BVDV	0	4.0%
STEC's	3%	NA

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## Emergency Preparedness

- Develop infrastructure for sample collection
- Establish working relationships
- Train personnel that know and work with the dairy industry



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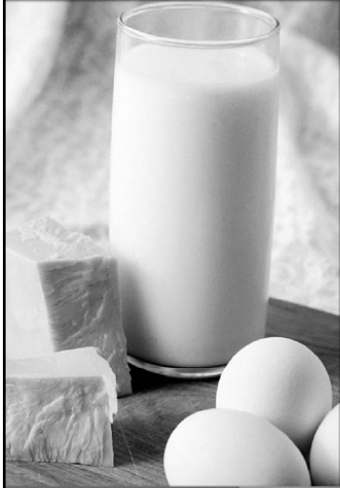
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## Bulk Milk Surveillance - Our Vision -

- Easy and affordable → builds on existing infrastructure of cold milk transport
- Provides producers with early detection of problems and tools to monitor management
- Surveillance tool for animal health, food safety and foodborne pathogens
- Framework for emergency preparedness
- Shows consumers the commitment of our dairy industry to cow health, milk quality, and safety of dairy products.

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## Thank You

To sign up or for information, contact:

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