

Surveillance and Biosecurity – Announcing the Bovine Surveillance Calf Project

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Background:

To date, in 2015 and 2016, there have been over 40 isolations of *Salmonella* Dublin from Ontario herds at the Animal Health Laboratory (AHL) in Guelph. Until 2012 the infection had never been identified in Ontario cattle. The positive samples have come from calf mortalities in 10 veal and three dairy operations. This doesn't sound like a lot but judging by what has happened in New York State and Quebec over the last 10 years, this could be the beginning of a larger invasion.

Outbreaks of disease with *S. Dublin* can be very severe. Typically calves between the ages of two weeks and four months are most affected. In some reports 40 to 50 per cent of exposed calves die. In most Ontario situations the visible signs have been pneumonia. Diarrhea is far less prominent than one would expect. In young calves the *S. Dublin* bacteria enter the blood stream and circulate to a variety of organs such as the lungs, liver, spleen, joints and stomach lining. A very poor response to antibiotic treatment and an increase in calf deaths is what prompts herd owners and their vets to submit samples to the lab.

A concerning aspect of the current *S. Dublin* isolates is the multi-drug resistance (MDR) of the current strain. So far the Ontario isolates, like the ones in New York and in Quebec, are resistant to most antibiotics available for calf treatment. Few calves that become sick during a *S. Dublin* outbreak are successfully treated.

Cattle movement is how *S. Dublin* enters a dairy, beef or veal operation. Typically the infection moves from farm to farm via carriers, infected yearling or mature cattle that show no signs, or in young calves that are already infected but not yet showing signs. As over 70 per cent of Ontario dairy producers reported introducing cattle into their herds over a recent five year period we suspect that more dairy herds are infected than those who have had disease detected in laboratory submissions so far.

S. Dublin can infect people as well as cattle. And in people as in cattle, *S. Dublin* infection is both invasive and multi-drug resistant. On farms where *S. Dublin* could be present everyone working with cattle should take basic biosecurity precautions to avoid infection. Biosecurity practices should be reviewed.

Frequent hand cleaning or gloves, protective clothing that stays in the barn, sanitation of feeding and handling equipment and so on will help to protect people and calves. Young, immunocompromised and older people are more vulnerable to infection. People access to the calf area should be restricted, especially if calves have been sick.

Veal producers will want to know if *S. Dublin* is present in barns, groups, pens or rooms of calves so they can modify treatment plans and upgrade biosecurity practices on the farm. Intensifying biosecurity, in response to a diagnosis of *S. Dublin*, can protect uninfected calves from infection. A diagnosis of *S. Dublin* should lead to a careful and comprehensive review of biosecurity practices around calf and people movement, hygiene at feeding and manure management. A biosecurity review and recommendations specific to each farm is the best way to respond to *S. Dublin*.

Project Details:

As part of the provincial disease surveillance strategy, a bovine health network group has been formed to communicate with industry, government, researchers and laboratory services regarding important cattle disease issues. The group has recently initiated a project to investigate calf health and, in particular, S. Dublin.

The project has two parts.

In Part One a **dairy producer** can sign up to have a bulk tank milk sample tested for antibody to S. Dublin to check for carrier cows. Testing bulk tank milk is a first step to evaluate how prevalent S. Dublin is within Ontario's dairy herd population. Eventually this background information will have implications for veal producers.

In Part Two, project funding offsets the charges for veterinarians to do, or submit, calves from **dairy, veal or cow-calf farms** for post-mortem (PM) examination. PMs can be done by the herd vet at the farm, with samples submitted to the lab, or the entire calf can be submitted to the Animal Health Laboratories in Guelph or Kemptville. A questionnaire about cattle health and management will be completed at the time of the first post-mortem. PM diagnostics are not limited to S. Dublin.

To date the PM findings have been very interesting and instructive. It can be difficult to tell what diseases and conditions calves are affected by especially young calves. While diarrhea and pneumonia are often the terminal disease issues for veal calves, other problems, warranting other therapies and preventives, are also being found. PMs on calves that die can be very useful for improving farm-specific calf health programs.

As a veal farmer, if you are interested in participating in the calf PM part of the project, **contact your herd veterinarian to find out how to enroll in this surveillance project.** Project details are also available from Ann Godkin (ann.godkin@ontario.ca or 519 846 3409), as is more information about S. Dublin in general.

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