When *Salmonella* Dublin hits
An Ontario dairy farmer's experience in finding, managing, and eradicating S. Dublin

In southwestern Ontario, Eric Reeve and his family run a dairy farm, calving out around 200 cows per year. He prides himself on being a progressive producer, who focuses on having excellent cow comfort using sand bedding and maintaining a closed herd to ensure no bugs get onto his farm. In fact, he had not brought in any cows for many years, which made it all the more surprising when he found out he had an outbreak of *Salmonella* Dublin (S. Dublin) in his herd in Fall 2019.

The arrival of *Salmonella* Dublin

Eric vividly remembers his first experience with S. Dublin. He was out feeding his calves one morning and noticed a calf around two months of age had pneumonia with a very high fever, which was a little unusual for him. He treated the calf with an antibiotic and decided to ask his veterinarian to have a look. His vet recommended treatment with a different antibiotic than Eric had given, and a pain reliever. The calf responded poorly to the treatment but did survive. Some time would pass before Eric would reflect back and realize that this was likely patient zero in his herd, responsible for infecting other calves with S. Dublin.

Moving through the remainder of 2019, Eric had more and more calves that showed similar symptoms and treatment responses, eventually failing to respond to any antibiotics he provided, which resulted in the difficult decision to euthanize them. As most producers can appreciate, this not only hurts in terms of losing herd replacements but takes a tough toll on those who need to make the decision to euthanize calves that had such promise to be a productive cow. Between October and the start of December, he lost four calves and had his veterinarian come out to do some post-mortem examinations. His veterinarian found signs of pneumonia but submitted some samples to the Animal Health Lab in Guelph to see what was really going on. To Eric and his veterinarian's surprise, the samples came back with the bacteria S. Dublin.

Now what?

After the initial surprise of the diagnosis, Eric began to implement several measures to mitigate the impact of the disease. First off, he spoke with his veterinarian, who said that it is a bacterium that causes pneumonia and is often resistant to antibiotics. He also noted that this disease is zoonotic, meaning it can cause disease in humans too. *Salmonella* Dublin can be transmitted through drinking raw, unpasteurized milk. As Eric and his family commonly drink milk from his bulk tank, he was concerned and immediately stopped, instead buying pasteurized milk from a local grocery store as pasteurization will kill this bacterium. The next step Eric took was to stop giving tours. He made sure people coming into his farm were using plastic boot covers, stopped selling heifers, and notified the drover picking up his male calves that he had S. Dublin to make sure he was not responsible for spreading the disease to his neighbours and other dairy or veal farms.

After taking steps to contain the bacteria to his barn, he started trying to figure out how to prevent it from spreading to more of his animals. His first step was to identify 'carrier' animals, which his veterinarian said were likely the ones that would continue to spread the disease. Eric blood tested all of his heifers and found a few in the same age range of the heifers that died were positive. His veterinarian said that he should isolate the positive animals away from the rest of the herd, as these carriers could shed the bacteria in their manure and infect other animals. The heifers were kept in isolation from other heifers, and he continually tested the herd to identify if there were any more. Over time, he found more positive cases and moved more into isolation. As there was not much knowledge about what to do with the positive heifers, he ended up euthanizing many of the animals that had high blood titres and those that tested positive for S. Dublin on two consecutive blood tests.

Beyond identifying the carriers, he put more emphasis on regular and routine cleaning and biosecurity along with disinfecting his hutches with chlorine dioxide, feeding tools, and equipment used for calves. What was surprising and concerning to him was that there was not a lot of information out there on this, and he felt that he and his vet really needed to learn as they went along.

Where did it come from?

Eric already had great biosecurity protocols. As this bacterium is spread through feces, it could have really been from anywhere—a visitor coming onto his farm with dirty boots and handling one of his calves, or maybe a piece of equipment he used to help out at another farm. He spent a lot of time talking to his advisors and those who visit his farm, from the feed reps to the hoof trimmer. Even if they were not responsible for bringing it on, it was a good wake-up call for everyone that we all need to be more diligent.

Because of the unknown source, Eric has implemented much more strict biosecurity protocols. He has a designated area for male calves to be picked by his drover, all visitors must wear plastic boot covers and have clean coveralls, he does not send animals off the farm for shows and is not open to tours.

Advice for dairy producers that do not have *Salmonella* Dublin

Eric hopes no other dairy farms experience S. Dublin, as it caused him a great deal of stress, was expensive to test and monitor for, and was disappointing when there were animals on his farm that had to be euthanized. Eric knows he is not the only one having this issue, as biosecurity is not seen as a high priority on many farms. He said that biosecurity is beyond just putting a sign in your window and following proAction requirements. Dairy farmers need to have a plan to manage this disease and be much more diligent in preventing this and other diseases from entering their farm.

He also feels strongly that farmers should not dismiss an unexplained death on their farm nonchalantly. It is important to do a post-mortem examination to understand why calves are dying to help prevent it from occurring again in the future. He said if he dismissed the first few calves as just a weird pneumonia, it would have been much worse and spread further throughout his barn. Finally, he highlighted the importance of having a good relationship with a veterinarian. Although his

veterinarian did not have all the answers at the beginning, they worked through this together to mitigate the extent of the impacts.

Eric said that he feels like he currently has a handle on the disease and has not seen any more calf health challenges since isolating and euthanizing the carrier animals. He continues to periodically take blood samples from his heifers to make sure they are not coming back positive. Eric's quick thinking and careful, attentive management likely saved his farm from having much more dire consequences.

This project was funded by the Canadian Agricultural Partnership, a five-year federal-provincial-territorial initiative.

For more information:

References available upon request.

This fact sheet does not replace medical advice. Producers are encouraged to discuss preventative measures to limit the risk of S. Dublin occurring on their farm with their veterinarian, and work with them to accurately assess and diagnose any sick animals, especially if S. Dublin is suspected. New resources on S. Dublin will be made available for veterinarians to access in the Vet Portal on calfcare.ca.

Disclaimer: This resource is for educational purposes only. Veal Farmers of Ontario is not responsible for any business or management decisions made by consulting this resource.

Veal Farmers of Ontario
449 Laird Road, Unit 12, Guelph, Ontario N1G 4W1
Tel: 519-824-2942
Fax: 519-824-2534
E-mail: info@vealfarmers.ca

Find us online:

www.vealfarmers.ca
www.calfcare.ca

Find us on social:

Twitter: @OntarioVeal
@CalfCareCorner
Facebook: @CalfCareCorner
@Finishing grain-fed veal in Ontario
@Marketing of male dairy calves in Ontario
YouTube: Calf Care Corner
OntarioVeal

Revised: May 2021