

Salmonella Dublin | How did it impact me and my calves?
A veal producer's perspective

Harris Cline runs a calf-raising facility in central Ontario. He, along with his staff members, raise over 2,000 calves each year. They buy calves from auction on a weekly basis for their facilities, where they are fed milk for seven weeks, weaned, then sold around 12 weeks of age for the grain-fed or dairy-beef market. Harris feels that the main keys to success for his farm are to ensure he is buying only top-quality calves in good body condition with body weights in excess of 45 kg (100 lbs.). Meeting these goals means his calves have lower levels of mortality and disease. Once calves are in place, he and his staff ensure they follow their routine protocols for vaccination, disease identification, and treatment, and provide excellent nutrition using a high-quality milk replacer and grain. Harris keeps a close eye on the health of his calves and has worked with his veterinarian and nutritionist to develop solid protocols to ensure success for every group of calves they bring in.

What happened when *Salmonella* Dublin hit?

A few years back is when they were first hit with *Salmonella* Dublin (S. Dublin). Harris remembers this outbreak vividly as he had 10 well-grown calves that were 12 weeks old in the barn die suddenly over a period of two days. This was very unusual, as he and his staff monitor calf health very closely, and these calves did not seem off. He called his veterinarian out to do some post-mortem exams and they had some unusual findings. Their carcasses were yellow with enlarged livers and lymph nodes, which is not a typical finding for young calves, and was not an obvious indication of diarrhea or respiratory disease that might be found in young animals. The veterinarian was not sure what it was and took samples to submit to the lab. A few days later, after another 10 calves had died, lab results came back showing S. Dublin was present.

Harris had heard of this disease before, from talking with some producers in the United States. Having purchased calves from the United States, Harris knew he was at higher risk but did not realize the devastating impact S. Dublin could have, and never thought it might affect him at any point. Through the outbreak, he ended up losing more than 25 per cent of that particular group of calves.

Through the outbreak, Harris recalls being well-supported by his veterinary team. First, they made him aware of the risk that S. Dublin can pose to human health. The high rate of mortality in this group of calves was already enough cause for the concern. The fact that S. Dublin can cause severe disease in humans, often requiring hospitalization, made this one of the most concerning issues he has dealt with in his career. Harris set to work, implementing several changes, including the mandatory use of disposable gloves by all staff when working with calves. They also implemented additional biosecurity measures, including specific coveralls and boots for that group, and cleaning and disinfecting the housing where the group was twice over, and letting it sit for two weeks before being filled again. Luckily, the biosecurity measures contained the outbreak to just that group of calves and it did not spread to other groups within his facility.

After the initial outbreak in 2014, they went a few years without seeing any signs of the disease. However, in the summer of 2019, it came back in a big way. This time, calves presented differently, with animals at 10 weeks of age showing respiratory signs, lethargy, and were very slow to stand. He and his staff treated the calves with their typical antibiotics for respiratory disease, but they did not respond. Harris said that it quickly spread from pen to pen, and to other groups in the barn. They had at least 20 per cent mortality and more than 25 per cent of calves treated for disease in those groups. Similar to the previous outbreak, his veterinarian did post-mortems and sent samples to the lab, which came back positive for S. Dublin. They once again set to work using the same protocols as their 2014 outbreak. Since then, Harris noted that they have been seeing this disease more frequently.

What has been the impact of *Salmonella* Dublin on Harris' farm?

Harris really wanted to highlight the impact these outbreaks had on his team. He and his staff found it very challenging when dealing with such high spikes in mortality and morbidity. Specifically, the staff feeding, treating, and checking everyday were significantly affected, and it took a toll on their mental health. Dealing with sick and dying calves on a routine basis can be very frustrating and overwhelming. With S. Dublin, the lack of response to treatment with antimicrobials left the staff wondering if they were doing something wrong, and they often felt helpless in caring for sick calves.

Harris also mentioned there was a substantial economic impact to having an outbreak with this disease, with potential income losses as high as 20 to 25 per cent to their regular bottom line. Harris also said that as S. Dublin is a notifiable disease, he felt that he would be stigmatized as a bad producer for having this disease present on his farm.

What protocols does Harris have in place to manage *Salmonella* Dublin?

Harris said that it is really tough to predict when the next group will be affected, so ensuring biosecurity protocols are in place at all times is critical. At his farm, they really make sure that each room where animals are housed is washed and disinfected following each rotation. Once the calves are shipped out, they use a fogger to help moisten the manure, then use a high-pressure washer to remove all fecal material. Once Harris is satisfied the room is clean, they foam the room with accelerated hydrogen peroxide and let the room dry for a week before bringing in new calves. He found this strategy to be successful in limiting transmission of disease between subsequent groups of calves housed in the same room.

Harris also mentioned they implement biosecurity measures, such as wearing and changing disposable gloves when calves are being handled and using footbaths. As S. Dublin is spread through feces, Harris said having clean boots and coveralls when moving between groups of calves is critical.

Harris' advice for other producers

Harris emphasized the importance of being careful with calf sources, as the infection likely originates on the dairy farm. He suggests that you might not need to change anything now if you are not having an issue, but he does think it is important to be prepared. He suggests making sure you have good biosecurity protocols in place is key, including keeping groups of calves isolated from one another, and using footbaths, clean coveralls, disposable gloves, and washing hands thoroughly and often. He also mentioned that his veterinarian really helped him deal with this disease, so ensuring you have a good working relationship can be very helpful. Harris notes that this is not something anyone wants to deal with, so doing everything you can to prevent it from occurring, but being prepared for it, is the best strategy for success.

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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.

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