

Salmonella Dublin: What Ontario Dairy Producers Need to Know

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What is Salmonella Dublin?

Salmonella Dublin is an emerging concern in Canadian dairy herds, with bulk tank milk testing detecting it in 5.1% of herds in Ontario, 30% of farms in British Columbia, and 16% of farms in Alberta. Unlike other *Salmonella* strains, *Salmonella* Dublin is specifically adapted to cattle, allowing it to persist within herds for long periods. This strain is particularly concerning because it tends to cause severe, systemic disease in young calves.

How Does it Spread?

The most common way *Salmonella* Dublin enters a herd is through the introduction of infected animals. Carrier cattle, which appear healthy but intermittently shed the bacteria in manure, milk, and other secretions, make it difficult to detect and eliminate from a herd. Once *Salmonella* Dublin is present, it can persist for years, spreading silently among animals.

The bacteria are transmitted primarily through manure, milk, and other body fluids. Young calves are particularly vulnerable, especially when exposed to contaminated bedding, colostrum, or feeding equipment. Poor ventilation and high stocking density further increase the risk, as *Salmonella* Dublin can spread through airborne particles in confined spaces. Equipment, boots, and visitors moving between pens can also act as sources of indirect transmission, emphasizing the need for strict biosecurity measures.

Signs of Infection in Calves and Cows

The signs of *Salmonella* Dublin infection can vary, but it most often affects young calves and can also impact adult cows:

- Calves (2–12 weeks old): The most common signs include pneumonia, fever, weakness, and blood infections (septicemia). Unlike other *Salmonella* infections, diarrhea is rare. In severe cases, calves may die suddenly.
- Adult Cattle: Infected cows may show signs such as fever, abortion, and reduced milk production. However, many carry the bacteria without showing any symptoms, making them silent spreaders.

Once introduced, *Salmonella* Dublin can spread quickly, especially in young calves. A single infected calf can expose many others, making early detection and prevention critical to protecting the herd.

Treatment Challenges

Providing supportive care, such as electrolytes and anti-inflammatory medications, can help affected calves recover. However, treating *Salmonella* Dublin is complicated by its high

resistance to antibiotics. While antibiotics may be needed for severely sick calves, they do not always prevent the bacteria from spreading or reduce the risk of long-term shedding. Even with treatment, death rates can be high in infected calves.

Prevention and Control Strategies

Since *Salmonella* Dublin is difficult to treat and eradicate, prevention is the best strategy. A few strategies that can help protect your herd include:

- Keep a closed herd: Avoid purchasing cattle from outside sources whenever possible. If animals must be brought in, test them before introduction and keep them in quarantine before mixing them with the rest of the herd.
- Biosecurity for visitors and equipment: Require veterinarians, nutritionists, and other farm visitors to wear clean boots and coveralls. Regularly disinfect shared equipment, especially feeding tools used for calves.
- Protect newborn calves: The calving area should be kept clean and dry. Limit manure exposure to newborn calves and avoid using the same area for sick cows and newborns.
- Pasteurize colostrum and milk: Heat treatment reduces bacterial levels and can prevent infection from milk-fed calves.
- House calves separately from older cattle: Older animals can shed the bacteria without showing signs of illness, so keeping young calves in a separate area reduces their exposure.
- Improve ventilation and reduce stocking density: Overcrowded and poorly ventilated barns create conditions where bacteria spread easily.
- Regular cleaning and disinfection: Clean and disinfect calf pens, feeding equipment, and manure-handling tools frequently. Removing organic matter, like manure, first is crucial, as disinfectants are less effective on dirty surfaces.

Take-Home Messages

Salmonella Dublin is a serious and emerging challenge for dairy farms in Ontario. Once it enters a herd, it can persist for years due to carrier animals and its ability to spread through the environment. Since treatment options are limited, prevention is key. By focusing on biosecurity, calf management, and sanitation, dairy producers can reduce the risk of infection and protect their herds from this costly and difficult-to-control disease. Work closely with your veterinarian to develop a herd health plan, implement testing strategies, and ensure appropriate management practices to minimize the impact of *Salmonella* Dublin on your farm.