

TOP FARMERS KNOW-HOW WEBINAR

SALMONELLA IN NEW ZEALAND



WHAT IS SALMONELLA?

- Bacteria, ~2,000-3,000 strains identified worldwide

› Common strains in New Zealand:

Cattle

- Typhimurium (primarily affects the gut)
- Bovismorbificans (primarily affects the gut)
- Brandenburg (primarily causes abortions) — currently only in the South Island

Sheep

- Hindmarsh (primarily affects the gut)
- Brandenburg (primarily causes abortions) — currently only in the South Island

› New emerging strain in New Zealand:

- Give (predominantly cattle) — NEW since 2019

- All can cause death and make people sick (zoonotic disease)

HOW DOES THE DISEASE WORK?

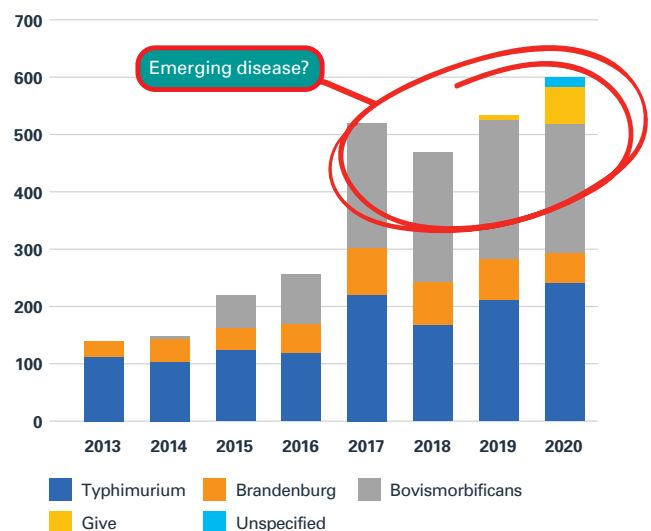
- Usually spread through ingestion of infected faeces or aborted material
- Normally a large infective dose is required ($>10^7$) to cause disease, but many fewer bacteria are needed if the animal has been fasted or their gut is upset
- Survival in the environment: months to years, longest in wet weather. Killed by freezing or pasteurising

WHAT CAUSES SALMONELLA OUTBREAKS?

- Carrier animals (which may appear healthy) shed Salmonella from faeces or body fluids into the environment. Most often the carriers are cattle or sheep (not ducks or birds)
- Cattle/sheep pick up the Salmonella which has been shed into the environment
- If the animals are stressed, fasted, or if the environmental contamination is high enough, animals are more susceptible and may become sick
- Sick animals shed very high numbers of Salmonella into the environment, furthering the outbreak

HOW ARE TRENDS IN CATTLE CASES CHANGING?

MPI Confirmed Salmonella Cases, Cattle



- New serotypes (Bovismorbificans and Give) are increasingly the cause of cases

WHICH FARMS ARE HIGH RISK?

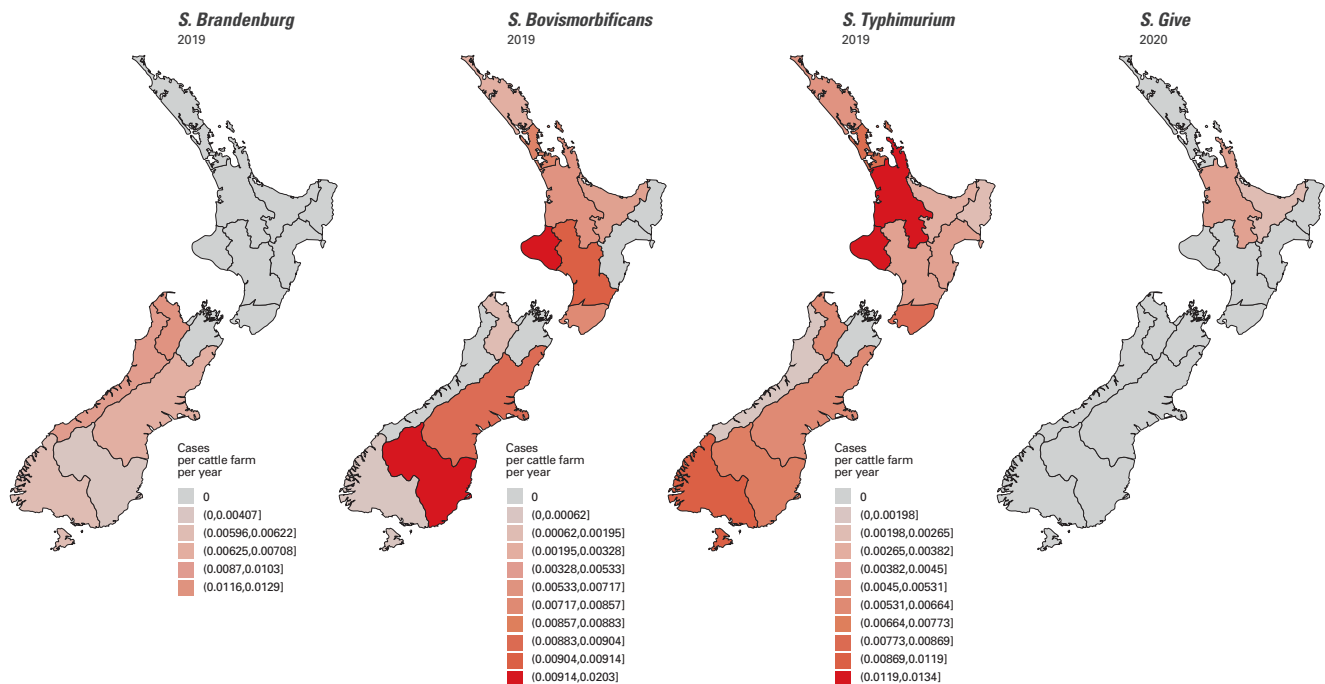
- Risk factors for Salmonella shedding / outbreaks in dairy cows:
 - › Recent history of cases in the herd / geographic hotspot
 - › Mixing of cattle from different sources / large herd size
 - › Stress / animal movements (calving / fasting / shipping / yarding)
 - › Intensive feeding / diet change (pelletised magnesium supplement, continuous troughs, PKE)
 - › No / incomplete vaccination program
 - › Liver fluke

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DISTRIBUTION OF SALMONELLA CATTLE CASES IN NEW ZEALAND



HOW CAN YOU REDUCE THE RISK OF SALMONELLA?

- Preserve normal gut pH and Volatile Fatty Acid (VFA) production
- Minimise stress (travel, mixing, diet change, time off feed)
- Improve hygiene
 - › Isolate sick animals ASAP
 - › Remove and bury aborted material ASAP
 - › Cleanly collect and store colostrum and calf milk — discard milk from scouring cows
 - › Avoid grazing at-risk groups of animals on effluent paddocks
 - › Store and feed supplements to minimise faecal contamination
- Vaccinate with Salvexin®+B (preventatively or in an outbreak). This has been proven to:
 - › Reduce shedding
 - › Reduce incidence of clinical cases
 - › Reduce stock losses during outbreaks

WHAT IS THE IMPACT OF A SALMONELLA OUTBREAK?

- Direct cost of an outbreak which causes 10% morbidity and 2% mortality on a 400-cow farm is estimated to be \$34,000
- Indirect/non-financial considerations
 - › Potential inability to supply milk until the outbreak is resolved
 - › Zoonotic disease risk (through contact with sick animals or by drinking raw milk)
 - › Often large volumes of antibiotics are used to support sick animals. This may contribute to antimicrobial resistance
 - › Impact on future reproduction
- When does preventative vaccination make sense?
 - › Vaccine for a 400 cow herd costs \$500-\$600
 - › Adding on the cost of vaccinating the cows and heifers, as well as some cost associated with labor and a temporary drop in milk, the total cost of vaccination is ~\$1,200

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FREQUENTLY ASKED QUESTIONS ABOUT SALVEXIN+B?

- What is in Salvexin+B and how is it used?
 - › Killed vaccine: contains Typhimurium, Hindmarsh, Bovismorbificans, Brandenburg
 - › Encourage preventative vaccination rather than in the face of an outbreak
- What can be expected from the vaccine in an outbreak?
 - › Outbreaks usually stop 10-14 days after the first vaccination^{1,2,3}
 - › Subsequent booster(s) still required
- What can be expected from the vaccine when used preventatively?
 - › Depends on risk factors, level of challenge
 - › Vaccine has shown: reduced mortalities in sheep by ~50% for Brandenburg^{4,5} and 90-100% for enteric⁶
- From what age can Salvexin+B be given?
 - › No age restriction, 2-3 weeks prior to the anticipated risk period
- What is the impact of preventative vaccination on healthy cows?
 - › Reports of milk drop for ~3 days
 - › Administer separately from other vaccines
 - › Ideal time for vaccination is late lactation or during the dry period
- Does Salvexin+B provide protection to calves via colostrum if cows are vaccinated pre-calving?
 - › 2019 field trial confirmed passive transfer of Typhimurium antibodies for current formulation

REFERENCES:

1. Daly, S (2019), Salmonella Brandenburg on Canterbury Dairy Farms. 2019 Conference Proceedings of the Society of Dairy Cattle Vets of the NZVA. p29-30.
2. Topham, I. (2014). The cost of enteric Salmonellosis in ewes. 2014 Conference Proceedings of the Society of Sheep and Beef Cattle Vets of the NZVA. p6.201-6.206.
3. Morgan P. (2013). Salmonella outbreak case studies, spring, 2011. 2013 Conference Proceedings of the Society of Dairy Cattle Vets of the NZVA. p 165-176.
4. Rutherford, K. (2006). A Salmonella Brandenburg Survey, 2005. Sheep and Beef Cattle Veterinarians Newsletter 29:26-29
5. Marchant, R. et al (2003). The use of vaccine to reduce the impact of Salmonella Brandenburg disease in sheep in New Zealand. Proceedings of the Conference of the Sheep and Beef Cattle Veterinarians Branch of the NZVA, 2002
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Don't wait for Salmonellosis to strike.



Vaccination reduces the impact of an outbreak and minimises production losses. Protect your flock with Salvexin®+B

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