

# 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?

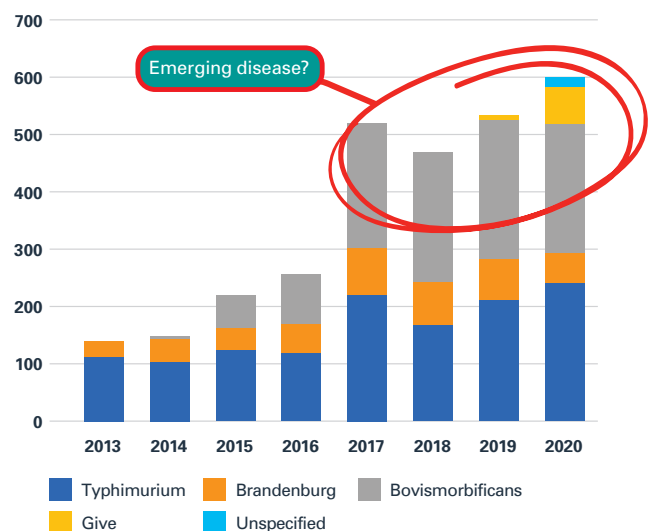
- Usually spread through ingestion of infected faeces or aborted material
- Normally a large infective dose is required ( $>10^7$ ) to cause disease, but many fewer bacteria are needed if the animal has been fasted or their gut is upset
- Survival in the environment: months to years, longest in wet weather.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

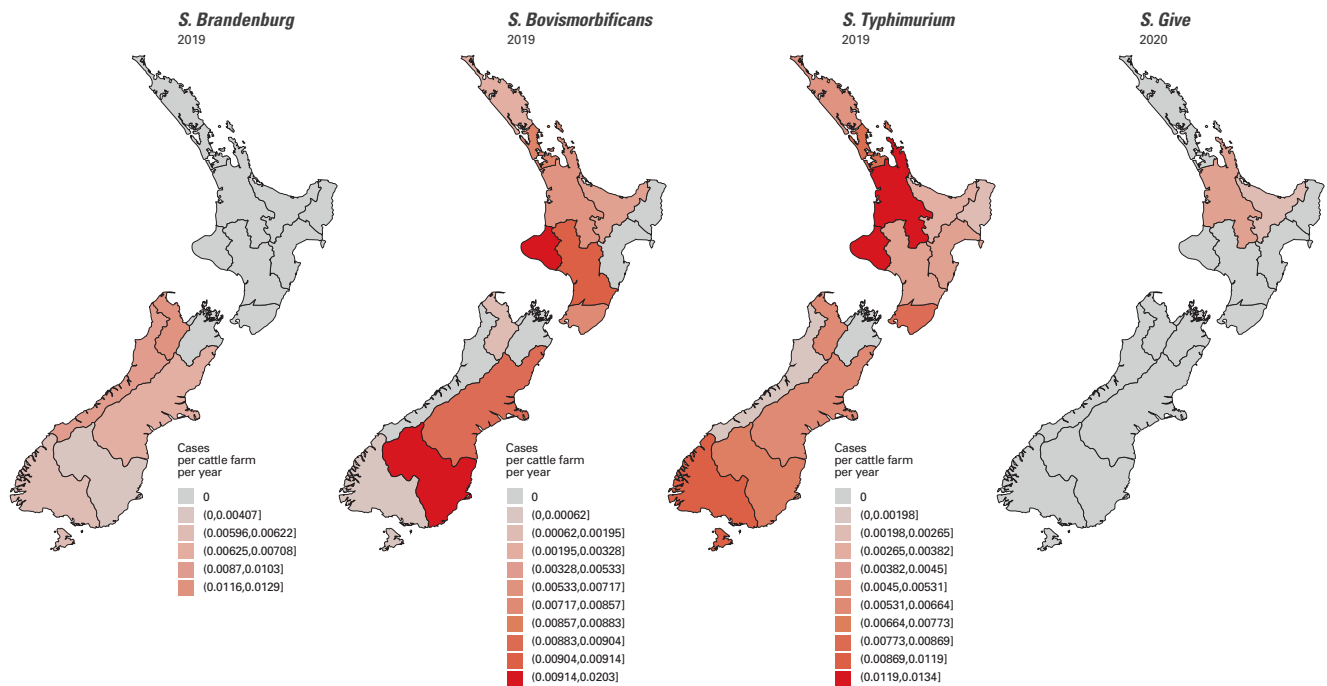
- Risk factors for Salmonella shedding / outbreaks in dairy cows:
  - › Recent history of cases in the herd / geographic hotspot
  - › Mixing of cattle from different sources / large herd size
  - › Stress / animal movements (calving / fasting / shipping / yarding)
  - › Intensive feeding / diet change (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<sup>1,2,3</sup>
  - › 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<sup>4,5</sup> and 90-100% for enteric<sup>6</sup>
- 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.
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4. Rutherford, K. (2006). A Salmonella Brandenburg Survey, 2005. Sheep and Beef Cattle Veterinarians Newsletter 29:26-29
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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**

### FOR MORE:

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