

Prevention and control recommendations for *Salmonella* Brandenburg

Salmonella Brandenburg emerged as a devastating cause of abortion and deaths in ewes in many districts of Canterbury, Otago and Southland. Unfortunately we believe that further geographic spread of the disease including into the North Island is probably only a matter of time.

There are a number of management practices farmers can carry out which will reduce the chances of *Salmonella* Brandenburg occurring on their property. These include:

1. Vaccination - A vaccination programme using Salvexin +B (Schering Plough) can be set up. This involves vaccinating all breeding stock twice in the first year, the doses being given at 4 – 6 week intervals with the second dose occurring about two weeks prior to the main challenge period, which appears to start about the end of June. That is, the second dose should be given by mid-June. In subsequent years all new stock will require two doses and all existing ewes will require one booster dose, again given by mid-June.

The risk in pregnant hoggets appears much reduced, so it is less important to vaccinate these.

Vaccination will result in:

- a reduction in abortions and ewe deaths.
 - a reduction in environmental contamination with the Brandenburg organism resulting in less risk of spread to other properties and cross contamination occurring at freezing works.
2. Reduction in Stocking Density – Mob stocking systems, while they usually result in good nutrition for the ewes, do carry an increased risk if there is a contagious disease such as *Salmonella* Brandenburg going round. While not always desirable, the more spread out you can graze your ewes the better from a contagious disease point of view.
 3. Maintain Adequate Nutrition – Ewes not under nutritional stress are more likely to withstand infectious challenge.
 4. Minimise the time ewes are in yards – bring smaller groups in at a time. This will also result in less risk of metabolic problems in pregnant ewes.
 5. Dampen down yards prior to yarding if they are dusty. *Salmonella* Brandenburg has been isolated from yard dust many months after an outbreak and has also been isolated from yard dust on farms where there has thought to be no cases of *S. Brandenburg*.
 6. Avoid where possible the purchase and / or grazing of stock from known affected farms, as there will almost certainly be a small percentage of the stock carrying the organism but not actually showing symptoms. However, be aware that supposedly unaffected farms can harbour the bacteria.

An exception to the above is the purchase of rams – because of the numbers involved (usually 1 – 4 animals) and the timing (January – February period) the chances of importing *S. Brandenburg*, while not absent, are certainly extremely low.

7. Ensure all stock have access to a fresh clean source of drinking water.

If you are unfortunate enough to have an outbreak of *Salmonella* Brandenburg abortions and deaths occur on your farm, the following measures should help to reduce the severity of the outbreak.

1. Rapid disposal of aborted fetuses and placenta by burial. This is most important as black backed gulls and hawks can accelerate the spread of the organism to other mobs and neighbouring farms.
2. Pour disinfectant over the exact area where aborted fetuses and placenta were lying. Note that not all disinfectants are equal – some are inactivated in the presence of organic matter, such as faeces, blood, and dirt. The best general purpose farm disinfectants for this purpose are the quaternary ammonium compounds; examples of these are Stericide and Septex.
3. Rapid isolation of aborted ewes into a separate mob, since these will be discharging millions of bacteria amongst other ewes.
4. Spread out affected mobs as far and wide as you can practically get away with.
5. Limit pre-lamb yardings to the absolute minimum in terms of number and length of time in the yards. One aborting ewe in a confined space has the potential to infect many others.
6. Control scavengers. These include black backed gulls, hawks, and your own dogs. A dead gull or two left lying around often deters other gulls.
7. If only some mobs are affected, go from unaffected to affected mobs on your daily rounds and then clean your vehicle tyres, wheel wells, farm bike trailer, etc. Again, use a disinfectant effective with high organic contamination as listed in 2 above.

Regarding antibiotic use to treat ewes suffering from *Salmonella* Brandenburg, there are pros and cons associated with this. While antibiotic treatment if given in time will markedly increase the survival rate of affected ewes, this treatment

- can result in an increase in the carrier state. That is, ewes carrying and shedding the organism but not actually showing any symptoms.
- has the potential to result in an increased incidence of antibiotic resistance. The use or otherwise of antibiotics should be discussed with your local veterinarian.

Salmonella Brandenburg (along with all *Salmonella*) have the potential to infect humans (that is, they are a zoonosis) and cause a very nasty and debilitating illness. To reduce the chances of human infection if you have *S. Brandenburg* abortions occurring on your farm:

1. Use disposable gloves when handling any aborted material or lambing any suspect ewe. These are available at all vet clinics.
2. Avoid putting fingers, dog whistles etc. anywhere near your mouth until washed in disinfectant.
3. Wash hands in disinfectant prior to every meal.
4. Don't bring contaminated clothing / footwear indoors.
5. Clean and disinfect your boots.
6. No smoking (at least until your hands are clean).
7. Take care with young children with respect to exposing them to potentially contaminated material.

Salmonella Brandenburg has the potential to cause contamination problems at freezing works. If you have had the disease on your property, then to reduce the chances of cross contamination at the works:

1. Dampen down dusty yards prior to yarding. *Salmonella* Brandenburg has been isolated from wool, so damping down will reduce wool contamination from *Salmonella* in shed dust.
2. Ensure stock are clean – crutch if necessary.
3. Again, minimise time in yards as much as possible.
4. Keep yarding stress on stock as low as possible – that is, reasonable handling, avoid excessive dog use, etc. Any stress can result in increased shedding of *Salmonella* organisms by carrier animals.
5. When sending cull ewes to the works that have survived a bout of *S. Brandenburg* earlier, there are some precautions in addition to those already listed above.

These include:

- a. Keep these stock on the farm for as long as practically possible before sending them to the works. Ideally these cull ewes should be kept until at least February. The longer the interval from disease occurrence to slaughter the less the chance of cross contamination. The meat regulations state that stock that has been in contact during the previous four weeks with stock affected with clinical salmonellosis shall not be sent to the works. However, as stated above, a longer interval is necessary to reduce the contamination problem, and waiting until February of each year would be desirable.
- b. Shear surviving affected ewes prior to going to the works. This will reduce the potential for *Salmonella* contamination of the wool.
- c. Notify the works buyer of these ewes' status so they can take appropriate measures at the slaughter premises.

Note that a, b, and c above apply only to surviving ewes that were actually clinically affected by *Salmonella* Brandenburg themselves, not necessarily to other ewes from the mob being culled for other reasons, such as age.

For more information on *Salmonella* Brandenburg, especially the incidence in your locality, please contact your local veterinary clinic – they will be happy to provide advice on the problem.

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