



Diagnosis and Control of Salmonella Dublin in Dairy Herds



Can a structured risk-based management plan be used in the UK to reduce within herd prevalence of Salmonella Dublin and improve calf health?

The Challenge

Salmonella Dublin is a major cause of poor calf health and mortality, as well as causing abortion, diarrhoea and milk drop in the adult herd. It is recommended that control focuses on improving hygiene and management, but no UK specific tool was available for assessing potential routes of transmission in the herd.

Serology is known to be a more sensitive method of detecting the presence of *Salmonella Dublin* in a herd than culture-based techniques.

The challenge was therefore to present a structured risk based approach that could be adopted commercially and would be a valuable herd health tool not previously commercially available in Great Britain.

The Research

Industry experience means that *Salmonella Dublin* is considered difficult to eradicate due to the creation of carrier cows, which do not clear their infection. Around 50% of herds which experience an outbreak become endemically

infected. However, successful control programmes are in place in Denmark and the Netherlands.

Five farms in southwest Scotland were recruited to the project. These farms had a confirmed outbreak of *Salmonella Dublin* within the last three months. Ten blood samples were taken from calves between three and six months of age to assess how many had been exposed to the bacteria.

A risk assessment document was produced, which had been adapted from one used as part of the Danish *Salmonella Dublin* eradication scheme.

Recommendations were made, and the farms were re-visited after six and twelve months to collect follow-up blood samples from subsequent batches of calves.

The Results

The percentage of calves on each farm which were positive for antibodies to *Salmonella Dublin* at the start of the study ranged from 10-100%. By the end of the twelve month period, four farms had no antibody positive calves in the sampled group, and the fifth farm had only one antibody positive calf.

On all five farms, the calving area was identified as the most significant risk area for the spread of *Salmonella Dublin*.

The second largest area of risk in four out of five farms was pre-weaning calf management.



Serological monitoring of calves allowed the impact of these changes to be assessed, and is a useful diagnostic and monitoring tool.

The risk assessment document provided a useful, structured way to identify areas of weakness and control.

This work has been circulated around veterinary practitioners to increase awareness and adaptation of protocols.

Project Detail

Project start date: [03/2014], finish date: [06/2016].

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The Impact

A monitoring and risk assessment protocol is an effective management tool, which can complement or reduce reliance on vaccination.

The control of *Salmonella Dublin* within a herd relies on identifying potential routes of spread, particularly from cows to calves.

If you have questions on cow calving and calf management contact your local consultant or veterinary practitioner.

If you have specific concerns on disease incidence in the herd or calf shed contact your vet or regional SAC Veterinary – Services Disease Surveillance Centres