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Pork CRC Research Summary

Project Number & Title: 2C-104 - Controlled exposure as a management tool for Glässer's disease

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Background:

Haemophilus parasuis is the causative agent of Glässer's disease, a significant disease in the pork industry worldwide. *H. parasuis* can cause infection rates of 50-70% and mortality rates above 10%. Production losses due to mortality and unthrifty pigs may be considerable. Autogenous vaccines, besides being expensive, only give protection if all the strains present on the farm are included in the vaccine. This project looked at diagnostic and treatment solutions for the disease.

One solution was controlled exposure at an early age to a live strain from the farm, which will not only give the piglets protection against the serovars on the farm but will also give cross-protection to other serovars.

As the diagnosis of the disease is still a problem on farms a series of diagnostic tools were developed for Australia, among them serovar profiling and a Real time PCR assay.

Methodology:

Controlled Exposure:

This involved the controlled exposure of piglets to a strain of *H. parasuis* from the farm. The effectiveness of this controlled exposure against the subsequent development of Glässer's disease was evaluated by clinical signs, morbidity and mortality in several experiments.

Serovar profiling of the farm:

This involved nasal swabbing pigs at a certain age and disease status, isolation of *H. parasuis* from the swabs and genotyping plus serotyping isolates.

Real Time PCR:

A real time PCR assay was developed to identify *H. parasuis* in tissue and fluid samples.

Key Findings/Conclusions:

Even though the field trials only gave preliminary indications that the method can work, the knowledge gained during the trials is currently helping pig farmers.

Major advances are a suite of diagnostic and support tools for pig veterinarians dealing with Glässer's disease.

- 1) A new improved PCR assay has been developed. This Real Time PCR is much more sensitive and specific than the existing conventional PCRs. The method has been validated for direct application to systemic sites and lungs and is available for use.
- 2) A serovar profiling service has been developed and is now available. This involves the submission of nasal swabs from pigs at weaning and also from diseased pigs. If *H. parasuis* is a problem on the farm, isolates are obtained and the serovars present on the farm are determined. A recommendation on which of the serovars should be included into an autogenous vaccine is provided. This service has now been provided for 23 farms successfully.
- 3) A *H. parasuis* genotyping service has been developed and is now available. This service can be used to understand on farm epidemiology (is one strain present on multiple farms? is an outbreak associated with a novel strain or the re-appearance of previously known strain?). This genotyping (and an expanding data-base of genotypes) will greatly improve our understanding and hence our ability to control outbreaks.

Potential Users of Information (including value assessment):

The diagnostic tools are already applied to diagnose *H. parasuis* on farms

