Australasian Pork Research Institute Ltd
APRIL

Project Number & Title: A1-104 ***Developing remote monitoring methods for early detection of respiratory disease in pigs***

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Aims and Objectives: The aim of this study was to identify whether remote monitoring by video (RGB), thermal infrared images and computer algorithms can be used to detect early signs of respiratory disease in free-moving pigs housed in groups. The result of this project could lead to further development of this technology as a tool to monitor pigs health and welfare, assisting the improvement of management of pigs on farms.

Key Findings:
Imagery and computer algorithms were validated to remotely measure physiological parameters in pigs (HR and RR). Moreover, computer vision techniques appeared to be a useful tool to detect early physiological changes in pigs affected by respiratory diseases, before the symptoms were observed by farm staff, assisting the early detection and management of respiratory diseases in pigs. The changes in remotely obtained eye-temperature and heart rate showed clear differences between sick and healthy pigs during the period evaluated. However, significant changes of RR occurred only in a later stage of the disease.

Application to Industry
The results of this pilot study are very encouraging and warrant further research on the development and implementation of imagery and computer-based methods as tools to constantly monitor pigs and other farm animals without the need of human interaction. These tools could aid the improvement of animal management and consequently animal health, animal welfare and productivity. Furthermore, the early detection of sick herds, and perhaps even more importantly, individual sick animals, would assist in improving the outcome of treatments and making the use of medications more effective.