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Pork CRC Research Summary

Project Number & Title: 2A-105 - Development and evaluation of feeding strategies to improve feed conversion efficiency in growing pigs.

Principal Investigator: Dr Robert van Barneveld.

Background:

The overall aim of this project was to establish a research facility within a commercial production system for the on-going use by the Pork CRC and industry for the investigation of nutritional strategies to improve feed conversion in grow-finisher pigs. This facility can be used in conjunction with a smaller scale facility developed simultaneously at the Department of Agriculture and Food, Western Australia, Medina research facility.

Once established this facility will be available to investigate nutritional strategies for adoption by nutritionists and pig producers to improve production efficiency and reduce herd FCR as well as generating data for use in the on-going development of production models.

Methodology:

This project involved the installation and commissioning of a FEEDLOGIC feeding system within commercial facilities as well as Prattley weighing system to allow for the weighing of individual pigs, with subsequent experimental work being conducted post-establishment. Subsequent to the installation of the system a total of 5 experiments were conducted on behalf of the Pork CRC under this project agreement. The FEEDLOGIC feeding system allows for on-the-fly blending of two diets from 0 to 100 per cent and when combined with four silos to draw from, the system has the ability to delivery multiple feed combinations within the one environmental and time frame. The FEEDLOGIC system is used to deliver and record feed disappearance, removing the possibility of feeding the wrong diet, reducing labour costs and allowing for more randomised allocation within the facility. The five experiments conducted under this project were:

1. Review of nutritional requirements of a modern lean genotype I.
2. Review of nutritional requirements of a modern lean genotype II.
3. Efficacy of ractopamine and pst combinations on finisher pig performance.
4. Efficacy of cysteamine as an in-feed growth promoter under commercial conditions I.
5. Efficacy of cysteamine as an in-feed growth promoter under commercial conditions II.

Key Findings/Conclusions:

Experiments 1 & 2 showed that modern lean genotypes appear to utilise lysine more efficiently at levels considerably higher than those currently in use. Whilst responses in growth rate were varied and showed no particular pattern across lysine levels, reduced feed intake and consequently improved feed conversion was seen as lysine levels were increased to around 11.5 to 12 g/kg total available lysine, whilst above this level of lysine inclusion performance reduced. Experiment 3 showed significant responses in performance efficiency to the use of ractopamine and porcine somatotropin. The use of ractopamine did not affect the feed consumption of the pig, however it did result in significant improvements in growth rate and subsequently feed conversion. Porcine somatotropin resulted in a non-significant additive growth rate response, but it had a significant effect on feed intake, reducing intake by 15%, and therefore a significant effect on feed conversion. Experiments 4 & 5 found that there was no significant response to the inclusion of cysteamine into the diet of finisher pigs.

Potential Users of Information (including value assessment):

Pig producers and their nutritionists will be able to use this information to assist them in improving production efficiency. One example of the value generated by work in this facility is the improvements that are obtained by using ractopamine and porcine somatotropin in combination, Auspig analysis of these results showed an improvement in profitability of as much as \$7.00 per pig.

