

## A SYMPOSIUM - NOVEL METHODS TO ENHANCE GROWTH

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### Introduction

Two factors that have had a significant influence on pig production, particularly over the last 10-20 years, are, first, the necessity to continually improve the efficiency of production and, second, the need to respond to the continual pressures of consumer demand. The drive to improve production efficiency is based on declining returns for pig meat and pig meat products and the increase in the size of production units with a reduced number of staff per sow (Campbell, 1995). The strength of consumer demand is best seen by the marked decrease in the backfat of pigs over the last 10-20 years (of at least 0.5 mm per year) in response to the demand for leaner meat. In the past, the efficiency of pig production has been increased by improving the match between the supply of nutrients in the diet with the pigs requirements, by improving climatic control in pig housing, by using improved genotypes that produce more lean meat per unit of feed intake, and managing pigs to improve herd health. These management strategies are still important factors in modern pig production but, as described by Campbell (1995), there has been no reduction in the average cost of production in the Australian pig industry over the last five years. This suggests that the pig industry may need to develop and adopt new methods to improve the efficiency of growth in pigs.

As our understanding of pig nutrition, metabolism and physiology has improved, opportunities have arisen for using novel methods to improve growth performance. The term 'novel' is used in this context to describe technologies that aim to manipulate specific metabolic processes by either increasing the potential growth rate or by removing specific limitations to productivity. The first two papers in this symposium (Dunshea and Walton, 1995; McCauley *et al.*, 1995) will address the scientific basis behind two strategies to improve growth that have been the focus of recent research. First, the use of exogenous metabolic modifiers and, second, the manipulation of endogenous hormones. These papers do not provide an exhaustive examination of novel growth enhancers, but they clearly demonstrate some recent advances in the manipulation of pig growth.

A discussion within the context of the entire pig industry on the potential of novel methods to enhance growth would be incomplete without considering the factors that contribute to the ultimate adoption, or rejection, of growth promoters by pig producers. The translation of novel laboratory techniques into methods that are adopted and integrated into production systems can be a difficult route with several hurdles to be cleared. The hurdles include regulatory approval by legislature, the scientific criteria of safety, quality and efficacy, and the more subjective political considerations of ethics, animal welfare and socio-economic impacts. The final paper in this symposium (Bent, 1995a) will address these issues.

The scientific research that aims to improve our understanding of the physiological mechanisms by which a novel method enhances growth may seem a long way from the market place for pigmeat. It is, however, part of the long process of converting an original idea into a technique that is adopted by the industry. For example, only rigorous scientific research allows us to determine the most appropriate methods of adopting the new technology, the likely impact on the costs of production, and the consequences on the quality of the final product. Coupling this work with a socio-economic evaluation is often neglected, perhaps because the two areas of research, *ie.*, scientific vs socio-economic, are generally carried out by different groups of people, *ie.*, physiologists vs economists. This, however, does not lessen the importance of combining scientific studies with an evaluation of the likely impact of new technologies on the industry as a whole.

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