

Foreword

The 8th International Workshop on Modelling Nutrient Digestion and Utilisation in Farm Animals (held in Cairns, Australia, 15–17 September 2014) continued the series of modelling workshops that have been associated closely with the International Symposium on Ruminant Physiology. It started as a modest workshop and is now the major forum for mathematical modellers of biological systems, especially with respect to nutrient digestion and utilisation in food- and fibre-producing animals. During the workshop special mention was made of the work of the late Lee Baldwin (University of California, Davis, USA) in initiating this workshop and in influencing a generation of mathematical modellers of digestion and metabolism and of the collaborative work with the late David Beever (University of Reading, UK).

Models are now more important than ever as they are the repository of our current knowledge within a rigorous traditional framework of hypothesis testing. They are increasingly used to assess different production scenarios and in the current workshop we have encouraged work that integrates the animal components of models into environmental and farm enterprise systems. Both require acceptable concepts backed up by tested equations so that the predictions are credible and can be used to make sensible decisions at policy, farm and individual animal levels.

It is at workshops such as this that the first new mathematical approaches are introduced and where new concepts consolidating large bodies of experimental work often emerge. This workshop was no exception and we saw a variety of papers advocating new

mathematical techniques and new approaches to solving existing biological problems. By such means our scientific ideas are advanced.

Invited reviews by John Black and Richard Eckard set the scene for a reflection on where models have come from and what their future might be. John Black challenged us to think about the application of models and how they might be integrated into management systems using real time data and also the need to continually develop mechanistic models. Richard Eckard challenged us to incorporate animal models within wider systems management and to assess environmental considerations with respect to model outputs. There were 27 peer-reviewed papers accepted for publication within a special issue of *Animal Production Science* and 61 one-page abstracts accepted for presentation as posters or short oral communications during the workshop. These were organised into four themes: (i) digestion, metabolism and consequences for productivity; (ii) enterprise and systems models for production and environmental impact; (iii) advances in modelling methodology; and (iv) modelling feed intake.

A total of 103 delegates from 18 countries attended the workshop.

Dennis Poppi
Chair of the International Committee
and the Local Committee