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Foreword

The '*Applied Genomics for Sustainable Livestock Breeding*' conference was held in May 2010, just as the application of new genomic technologies was achieving significant impacts in the livestock industries globally.

In the more intensive pig, poultry and dairy industries, genomic selection has been affecting through increased accuracy of selection and reduced generation interval, rapidly replacing many of the traditional quantitative genetics approaches based on extensive progeny testing.

In the more extensive beef cattle and sheep industries, progress has been slower as has the use of traditional quantitative genetics approaches. The application of genomic technologies has also been made more difficult in the extensive industries because of the need to accurately predict the performance of animals across multiple breeds. This requires access to denser single-nucleotide polymorphism (SNP) panels and many more animals than is required for single/major breeds such as those in the intensive industries. High-density SNP panels became available to scientists in the beef industry only in late 2010, meaning that prediction equations based on those panels are just now being developed and will be delivered for industry use in late 2011.

Regardless of the pace of change and the very different ways that the technologies are being used by the different industries, each industry has experienced tumultuous changes and has had to adapt to many new challenges thrown up by those changing technologies. Through shared learning, DNA-based technologies will continue to revolutionise the way livestock businesses breed and manage their animals on a day-to-day basis to improve the productivity and profitability of their enterprises.

The Cooperative Research Centres for Beef Genetic Technologies (Beef CRC), Sheep Industry Innovation (Sheep CRC) and Dairy Futures (Dairy CRC) were very pleased to be able to coordinate this international event with backing from the Sir Mark Oliphant Conference Series (supported by the Australian Government's International Science Linkages – Science Academies Program).

The Special Issue '*Applied Genomics for Sustainable Livestock Breeding*' brings together a selection of research papers that review research progress and the delivery of livestock genomics research applications, specifically for the beef and dairy cattle and sheep industries globally.

The Beef, Dairy and Sheep CRCs sincerely thank the authors for their contributions and participation in this event. It has been a timely opportunity for networking and development of new partnerships aimed at delivering value for the livestock industries across Australia and internationally.

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