## Association for the Advancement of Animal Breeding and Genetics



# Proceedings of the Twenty-first (21<sup>st</sup>) Conference

Lorne, Victoria, AUSTRALIA 28<sup>th</sup> September – 30<sup>th</sup> September 2015 © Association for the Advancement of Animal Breeding and Genetics, 2015 All rights reserved except under the conditions described in the Australian Copyright Act 1968 and subsequent amendments, no part of this publication may be reproduced, stored in a retrieval system or be transmitted in any form, or by any means, electronic, mechanical, photocopying, recording, duplicating, or otherwise, without prior permission of the copyright owner. Contact the Committee of the Association for the Advancement of Animal Breeding and Genetics for all permission requests.

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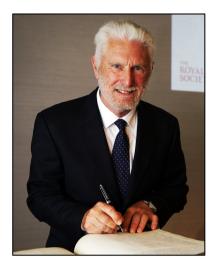
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#### PRESIDENT'S MESSAGE



A very warm welcome to the AAABG's coming of age meeting, the 21st conference in Lorne, Victoria. Previous Victorian conferences have been held in Melbourne in 1981, 1991 and 2003 but this time we hope you enjoy a chance to visit the Great Ocean road, a famous tourist destination, and enjoy a swim in the pleasantly, cool and refreshing Southern ocean!

The scientific program reports a wide variety of research and I trust contains much of interest to everyone. We have reached the stage where genomic selection is no longer novel and is being imbedded in traditional breeding programs. There

is still much to do to get the most out of DNA technology and I hope the conference helps a little to push this topic forward.

Since the first conference in 1979, AAABG has established itself as the premier meeting of Australian and New Zealand scientists working on the genetic improvement of livestock. It has always been intended that AAABG was also an opportunity for scientists and breeders to meet and discuss livestock breeding. However, over the years the number of conferences covering this field has increased and it is not obvious how to structure the conference to meet both objectives. I hope you will come to the OGM to discuss how AAABG should proceed in the future.

I wish to thank the sponsors who have supported the conference, allowing us to invite several overseas speakers and the conference organisers ASN and especially to thank the committee who have organised the Lorne meeting.

Mike Goddard President, AAABG 2015

### ASSOCIATION FOR THE ADVANCEMENT OF ANIMAL BREEDING AND GENETICS 2015

### TWENTY FIRST CONFERENCE

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#### CITATION OF PAPERS

Papers in this publication should be cited as appearing in the Proceedings of the Association for the Advancement of Animal Breeding and Genetics (Abbreviation: Proc. Assoc. Advmt. Anim. Breed. Genet.)

For example:

Bowley F.E., Amer P.R. and Meier S. (2013) New approaches to genetic analysis of fertility traits in New Zealand dairy cattle. Proc. *Assoc. Advmt. Anim. Breed. Genet.* **20**: 37-40.

#### REVIEWERS and SECTION EDITORS

All papers, invited and contributed, were subjected to peer review by two referees. We acknowledge and thank those people listed below for their work in reviewing the papers (and apologise if we have inadvertently omitted any reviewer from the list). Our special thanks also to the chairs that oversaw the review process as 'section editors' (below).

**Section Editors:** Kim Bunter, Tim Byrne, Hans Daetwyler, Susanne Hermesch, Kathryn Kemper, James Kijas, David Nation, Wayne Pitchford, Suzanne Rowe, Matt Shaffer, Alison van Eenennaam.

#### **Reviewers:**

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