

**ASSOCIATION FOR THE ADVANCEMENT OF  
ANIMAL BREEDING AND GENETICS**



**Proceedings of the Nineteenth Conference**

***Breeding Objectives: A New Paradigm***

**University of Western Australia, Perth, W.A. Australia  
19th – 21st July 2009**

© Association for the Advancement of Animal Breeding and Genetics, 2011

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.

**ISSN 1328-3227**  
**ISBN 978-0-646-55915-5**

*Produced by:*

Association for the Advancement of Animal Breeding and Genetics  
C/- AAABG Secretary, Dr K Munyard  
GPO Box 1987  
Perth W.A. 6845  
Australia

Internet web site: <http://www.aaabg.org>

*Available from:*

AAABG Distribution Service  
c/- AGBU  
The University of New England  
Armidale, NSW 2351  
Australia

## PRESIDENT'S MESSAGE

Welcome to the 19<sup>th</sup> Conference of the Association for the Advancement of Animal Breeding and Genetics.

The theme for this conference is Breeding Objectives: a new paradigm. It has been chosen because we are living in a new, exciting era. Climate change and consumer attitudes have changed dramatically during the past 10 years. It is therefore essential that we take stock of where we are at with animal production systems and look at where we want to go. Geneticists and animal breeders have a special responsibility to develop technologies to identify genetically superior animals and to assist the animal industries to breed from these animals. However, these technologies need to produce animals that are more productive and able to thrive under a variety of production systems, as well as being robust and resistant to diseases while catering for the emerging public interest in animal ethics and 'clean and green' production. Genetics can make a considerable contribution to developing sustainable animal production systems. A significant number of excellent papers have been submitted that will address this topic.

Huge advances have been made in developing genetic technologies for breeding purposes. SNP chips are becoming part of our suite of technologies and offer great promise as selection tools, especially for those traits that are difficult to measure and are only expressed in one sex or later in life. Australia is very fortunate to be in the forefront of these exciting developments, some of which will be presented at this conference. This is a particularly important topic for this conference as huge expectations have been raised amongst breeders about the potential of these new technologies.

One of the key roles of AAABG is to inform industry of the latest advances in animal breeding. Extensive performance recording schemes exist for dairy cattle, beef cattle, pigs and sheep and significant changes have occurred during the past 10 years. To inform both you and local breeders of these changes, and of the latest developments in industry structures, an Industry Day for breeders of the major livestock species will be held on Thursday, 21<sup>st</sup> July 2011. This will run concurrent with the rest of the conference program.

We hope that you will enjoy your stay in our beautiful city Perth, and that the conference program will satisfy your expectations. Make full use of this opportunity to strengthen ties with old friends and colleagues and leave Perth with a few extra friends and very fond memories.

Johan Greeff  
*President*

**ASSOCIATION FOR THE ADVANCEMENT OF  
ANIMAL BREEDING AND GENETICS**

**NINETEENTH CONFERENCE**

**ORGANISING COMMITTEE**

President	Johan Greeff
President-Elect	Hugh Blair
Vice President	Phil Vercoe
Secretary	Kylie Munyard
Treasurer	Bronwyn Clarke
Members	Tony Schlink John Karlsson Ken Hart Jeisane Accioly
Editor	Phil Vercoe
Proceedings Production	Bill Pattie Barrie Restall

**CITATION OF PAPERS**

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

For example:

Teseling C.F. and Parnell P.F. (2011) The effective management of deleterious genetic conditions in cattle. *Proc. Assoc. Advmt. Anim. Breed. Genet.* **19**:131-134.

## REVIEWERS

All papers, invited and contributed, were subject to peer review by two referees who are listed below. The allocation of papers to oral or poster presentation was based on the facilities available, the conference program and themes.

The following people are acknowledged and thanked for their efforts in reviewing papers:

Daniel Abernathy	Sue Hatcher	Scott Newman
Peter Amer	Ben Hayes	Gert Nieuwhof
Jason Archer	Roger Hegarty	Chris Oldham
Paul Arthur	Mark Henryon	Willem Olivier
Kevin Atkins	John Henshall	Peter Parnell
Alex Ball	Robert Herd	Gemma Payne
Rob Banks	Susan Hermes	Laurie Piper
Bill Barendse	John Hickey	Wayne Pitchford
Steve Barwick	Matthew Hobbs	Geoffrey Pollot
Rolf Beilharz	John James	Raul Ponzoni
Samantha Bickell	David Johnson	Jennie Pryce
Dominique Blache	Patricia Johnson	Ian Purvis
Hugh Blair	David Johnston	Herman Raadsma
Cynthia Bottema	John Karlsson	Gordon Refshauge
Forbes Brien	Kathryn Kemper	Antonio Reverter
Daniel Brown	Paul Kenyon	Dorothy Robinson
Kim Bunter	Mehar Khatkar	Alex Safari
Heather Burrow	James Kijas	Anthony Schlink
Yizhou Chen	Brian Kinghorn	Ross Shepherd
Bronwyn Clarke	Mark Kirkpatrick	James Skerritt
Schalk Cloete	Konstantin Konstantinov	Jen Smith
David Cottle	Jason Ledger	Richard Spelman
Hans Daetwyler	Sang Hong Lee	Andrew Swan
Brian Dalrymple	Yutao Li	Ross Tellam
Ken Dodds	Nicholas Lopez-Villalobos	Robin Thompson
Sonja Dominik	John Lucey	Andrew Thomson
Kath Donoghue	Brian Luxford	Bruce Tier
Zoey Durmic	Irek Malecki	Johan van Arendonk
Mark Ferguson	Karen Marshall	Julius van der Werf
Neal Fogarty	John McEwan	Japie van der Westhuizen
John Gibson	Brian McGuirk	Alison van Eenennaam
Sam Gill	Bill McKiernan	Japie van Wyk
Arthur Gilmour	John Milton	Ari Verbyla
Mike Goddard	Christopher Moran	Phil Vercoe
Cedric Gondro	Chris Morris	Claire Wade
Hans Graser	Sue Mortimer	Steve Walkden-Brown
Johan Greeff	Gerhard Moser	Bradley Walmsley
Paul Greenwood	Carel Muller	Rob Woolaston
Mekkonen Haile-Mariam	Kylie Munyard	Mark Young
Bevin Harris	Karin Myer	
Ken Hart	Frikkie Nesor	

## SPONSORS OF THE AAABG 19th CONFERENCE

AAABG gratefully thank our sponsors for their generous support of the 19<sup>th</sup> Conference

### SILVER SPONSORS



THE UNIVERSITY OF  
WESTERN AUSTRALIA  
*Achieve International Excellence*

### BRONZE SPONSORS



illumina®

### SATCHELS

### NAME BADGES



Department of  
Agriculture and Food



D.A.T.A.M.A.R.S

### CONFERENCE DINNER



HILLSIDE MEATS  
CUBALLING ROAD  
NARROGIN W.A.

*AAABG was formerly known as the Australian Association for Animal Breeding and Genetics. Following the 1995 OGM the name was changed when it became an organisation with a joint Australian and New Zealand membership. The Association for the Advancement of Animal Breeding and Genetics is incorporated in South Australia.*

## **THE ASSOCIATION FOR THE ADVANCEMENT OF ANIMAL BREEDING AND GENETICS INCORPORATED**

### **OBJECTIVES**

- (i) to promote scientific research on the genetics of animals;
- (ii) to foster the application of genetics in animal production;
- (iii) to promote communication among all those interested in the application of genetics to animal production, particularly breeders and their organisations, consultants, extension workers, educators and geneticists.

### **To meet these objectives, the Association will:**

- (i) hold regular conferences to provide a forum for:
  - (a) presentation of papers and in-depth discussions of general and industry-specific topics concerning the application of genetics in commercial animal production;
  - (b) scientific discussions and presentation of papers on completed research and on proposed research projects;
- (ii) publish the proceedings of each Regular Conference and circulate them to all financial members;
- (iii) use any such other means as may from time to time be deemed appropriate.

### **MEMBERSHIP**

Any person interested in the application of genetics to animal production may apply for membership of the Association and, at the discretion of the Committee, be admitted to membership as an Ordinary Member.

Any organisations interested in the application of genetics to animal production may apply for membership and, at the discretion of the Committee, be admitted to membership as a Corporate member. Each such Corporate Member shall have the privilege of being represented at any meeting of the Association by one delegate appointed by the Corporate Member.

### **Benefits to Individual Members**

- While it is not possible to produce specific recommendations or “recipes” for breeding plans that are applicable for all herd/flock sizes and management systems, principles for the development of breeding plans can be specified. Discussion of these principles, consideration of particular case studies, and demonstration of breeding programs that are in use will all be of benefit to breeders.
- Geneticists will benefit from the continuing contact with other research workers in refreshing and updating their knowledge.
- The opportunity for contact and discussions between breeders and geneticists in individual members’ programs, and for geneticists in allowing for detailed discussion and appreciation of the practical management factors that often restrict application of optimum breeding programs.

### **Benefits to Member Organisations**

- Many of the benefits to individual breeders will also apply to breeding organisations. In addition, there are benefits to be gained through coordination and integration of their efforts. Recognition of this should follow from understanding of common problems, and would lead to increased effectiveness of action and initiatives.
- Corporate members can use the Association as a forum to float ideas aimed at improving and/or increasing service to their members.

### **General Benefits**

- Membership of the Association may be expected to provide a variety of benefits and, through the members, indirect benefits to all the animal industries.
- All members should benefit through increased recognition of problems, both at the level of research and of application, and increased understanding of current approaches to their solution.
- Well-documented communication of gains to be realised through effective breeding programs will stimulate breeders and breeding organisations, allowing increased effectiveness of application and, consequently, increased efficiency of operation.
- Increased recognition of practical problems and specific areas of major concern to individual industries should lead to increased relevance of applied research.
- All breeders will benefit indirectly because of improved services offered by the organisations which service them.
- The existence of the Association will increase appreciably the amount and use of factual information in public relations in the animal industries.
- Association members will comprise a pool of expertise – at both the applied and research levels – and, as such, individual members and the Association itself must have an impact on administrators at all levels of the animal industries and on Government organisations, leading to wiser decisions on all aspects of livestock improvement, and increased efficiency of animal production.

### **CONFERENCES**

One of the main activities of the Association is the Conference. These Conferences will be structured to provide a forum for discussion of research problems and for breeders to discuss their problems with each other, with extension specialists and with geneticists.