Association for the Advancement of Animal Breeding and Genetics

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PRESIDENT'S MESSAGE

On behalf of the organising committee, it gives me much pleasure to welcome members, Fellows and Honorary members and delegates to Tāhuna Queenstown and the 26th Conference of the Association for the Advancement of Animal Breeding and Genetics (AAABG). Our conference theme is "Genetic Frontiers: Innovations in Animal Breeding for a Sustainable Future". We are looking forward to three days of learning, exchange of knowledge and ideas, and of meeting friends and colleagues, old and new, with a shared interest in the science and practice of modern animal breeding.

AAABG has been an incredibly important organisation in my career and professional development, and I know many of our members would express similar views. It has provided opportunity to look outwards and to engage with others working in animal breeding, to understand the latest developments and ideas in animal breeding, and to form long-standing connections and lifelong friendships. To those of you who are regular contributors, thanks for your presence here again. And for those of you who might be attending AAABG for the first time, welcome to the Association and please make the most of the opportunity to connect with others, to share your knowledge and to learn.

Animal breeding, and the scientific endeavours associated with it, has played an integral part in the economies of both Australia and New Zealand. Both countries have significant and long-standing livestock industries, and over the past few decades the aquaculture industries in both countries have also grown substantially. Compared to other parts of the world, both countries punch well above their weight when it comes to animal breeding, whether measured on an industry size basis or a population basis. What we do matters – it generates revenue and profit for our animal-based industries including farming families, it maintains their international competitiveness, it helps feed the world, it improves the lives of small-holding farmers in less wealthy countries and importantly, if done correctly, it can produce a better outcome for the health and welfare of the animals which we work with. It is also increasingly a platform that can be used to improve environmental outcomes.

We are grateful for the generous support of our sponsor organisations whose contributions make conferences sustainable. Thanks also to our conference organisers (ICMS Australasia), and to all the members of the conference organising committee whose enthusiasm and commitment to the cause is what makes a conference come together. We also have a debt of gratitude to Dr Sue Hatcher, who combines the dual roles of AAABG Editor and AAABG Executive Officer so well and keeps us on track.

Enjoy your time in this unique and beautiful place and take the opportunity to renew acquaintances and expand your networks with other delegates from the animal breeding community.

Jason Archer
President

ASSOCIATION FOR THE ADVANCEMENT OF ANIMAL BREEDING AND GENETICS

2025

TWENTY SIXTH CONFERENCE COMMITTEE

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.)

Example citation:
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

All papers, invited and contributed, were subject to peer review by two referees. We acknowledge and thank those listed below for reviewing the AAABG papers contained in these proceedings.

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Conference App

THE ASSOCIATION FOR THE ADVANCEMENT OF ANIMAL BREEDING AND GENETICS[1] INCORPORATED[2]

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.

[1] 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.
[2] The Association for the Advancement of Animal Breeding and Genetics is incorporated in South Australia.

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.

ASSOCIATION FOR THE ADVANCEMENT OF ANIMAL BREEDING AND GENETICS

FELLOWS OF THE ASSOCIATION

"Persons who have rendered eminent service to animal breeding in Australia and/or New Zealand or elsewhere in the world, may be elected to Fellowship of the Association…"

Elected February 1990
R.B.M Dun
F.H.W. Morley
A.L. Rae
H.N Turner

Elected September 1992
K. Hammond

Elected July 1995
C.H.S. Dolling
J.R. Hawker
J. Litchfield

Elected February 1997
J.S.F. Barker
R.E. Freer

Elected June 1999
J. Gough
J.W. James

Elected July 2001
J.N. Clarke
A.R. Gilmour
L.R. Piper

Elected September 2005
B.M. Bindon
M.E. Goddard
H.-U. Graser
F.W. Nicholson

Elected September 2007
K.D. Atkins
R.G. Banks
G.H. Davis

Elected September 2009
N.M. Fogarty
A.R. Fyfe
J.C. McEwan
R. Mortimer
R.W. Ponzoni

Elected September 2011
B.P. Kinghorn
A. McDonald

Elected October 2013
H.M. Burrow
P.F. Fennessy
G. Nicol
P. Parnell

Elected October 2015
P.F. Arthur
D. Johnson
K. Meyer
B. Tier
R. Woolaston

Elected October 2019
S.A. Barwick
H.T. Blair
S.W.P. Cloete
I.W. Purvis

Elected November 2021
F.D. Brien
D. Garrick
J. Greeff
B.J. Hayes
J.E. Pryce
J.H.J van der Werf

Elected July 2023
K.G. Dodds
W.S. Pitchford
H.W. Raadsma
C.W. (Bill) Sandilands
A.A. Swan

Elected June 2025
P.R. Amer
K.L. Bunter
M. Haile-Mariam
S.I. Mortimer
M.Shaffer
S. Skinner
A.L. Van Eenennaam

PETER R. AMER

Peter grew up on a Dairy Farm in North Canterbury in New Zealand. He studied Agricultural Science at Lincoln College with his Honours dissertation titled "Methods of calculating breeding values for rams in flocks genetically linked by reference sires" completed in 1988. The following summer he joined the Genetics Section at Ruakura Agriculture Research Centre where he worked on researching and implementing the statistical analysis for the National Sire Referencing Scheme. He then moved to University of Guelph for his PhD "Economic evaluation of beef cattle genotypes using neoclassical production theory" awarded in 1992. His thesis was selected to represent the Department of Agricultural Economics and Business in a competition among North American Universities.

Peter had postdoctoral fellowships at the Swiss Federal Institute of Technology, Zurich (studied economic aspects of dual cattle production) in and Scottish Agricultural College, Edinburgh (working on economic selection indexes in beef cattle breeding). In 1996 he was appointed as a Geneticist with AgResearch at Invermay, Mosgiel NZ. He worked on optimising industry use of major genes; supported industry genetic improvements programmes for sheep and deer; analysed livestock data sets to detect evidence of gene segregation; and had contract work in aquaculture breeding programmes, predominantly salmon.

In 2001 he was one of the early scientists to join Abacus BioTech where he consulted on indexes for industry groups which has had continued. During the early days he also did some venture investment work for the original Abacus Biotech Investors. In 2006 Peter was a founding partner in the establishment of AbacusBio and has been Managing Director from 2022.

Peter has set an outstanding example of how to both effectively serve industry and continue to be scientifically active. He has published 341 articles (100 on Scopus) with a h-index of 26. He is highly collaborative publishing with 150 co-authors. He has been able to work across countries and production systems with his top three cited papers include developing breeding objectives for beef cattle in Ireland, sheep in New Zealand and dairy cattle in Australia.

Peter is extremely good at listening to farmers and understanding challenges in their production systems. He is a highly effective mentor of young scientists and consultants, and has been an early adopter of novel tools such as 1000minds for decision making and conjoint analysis. For his outstanding contribution to developing genetic improvement programs across multiple species, the Association for the Advancement of Animal Breeding and Genetics is pleased to elect Peter Amer as a Fellow of the Association.

KIM L. BUNTER

Dr Kim Bunter is a Principal Scientist at the Animal Genetics and Breeding Unit (AGBU). Since 2022 she has held the position of Deputy Director where she contributes leadership to a team of close to 40 scientists, staff and students that develop and build the genetic infrastructure that underpins genetic improvement programs for agriculture industries in Australia, including sheep, beef, swine, goats, bees and plants. Kim has been a part of the AGBU and by extension the AAABG communities for over 30 years. A product of the University of New England education pathway, Kim completed her PhD in 2002. Her foray into Ostrich breeding for her PhD, an unexplored frontier at the time, would foreshadow Kim's career as someone who tackled new problems, species and traits. As a result of her desire to answer practical industry questions, Kim developed important knowledge for implementation across many species including pigs, sheep, beef cattle, Sydney Rock oysters, ostrich, and prawns. Recently Kim provided pivotal leadership for the development of a genetic evaluation system for Australian honeybees called "Plan Bee".

Kim's largest impact on the Australian genetics industry is certainly in the pig industry. Kim collaborated widely with researchers in universities and breeding companies and has contributed to the long-term impact of genetics expertise at these breeding companies where former PhD students now hold influential roles. Kim led many projects in pigs including development of mate selection strategies, and projects on immune responsiveness, piglet mortality, heat stress, use of juvenile IGF-1 in pig breeding, development of selection criteria to improve welfare in group housed sows, the genetics of reproductive performance, sow longevity and feed efficiency, and determination of meat and eating quality differences between Australian genotypes. Her work contributed to several publications and developments in PIGBLUP software.

Kim has also applied her extensive knowledge in the genetics of reproduction to other species. Kim contributed to the development of the "Days to Calving" trait at AGBU, which became the primary reproductive trait in BREEDPLAN for beef cattle. In recent years Kim, alongside the team at AGBU, has developed the component reproduction analysis for the Sheep Genetics LAMBPLAN Maternal and Merino evaluations. This was a significant body of work with huge benefit to the Australian sheep industry as it enabled breeders to select on the components of reproduction and focus on improving weaning rates through improved survival of lambs, not just larger litters. Kim has continued to provide guidance on improving welfare in the sheep industry through her work with lamb survival and the development of footrot breeding values.

Kim has (co)authored over 200 publications across a wide variety of species and topics. Kim's first contributing paper to AAABG was in 1995 at the Roseworthy Conference. Since then, Kim has authored and co-authored over 50 AAABG papers and was President of the 2019 conference in Armidale. This conference demonstrated Kim's dedication to the organisation as she pulled together a great conference against the odds with the notorious black summer bush fires as a backdrop. She backed this up leading a AAABG conference hub in Armidale in 2021, following Covid and post-tornado. For her outstanding contributions to the science of genetics and animal improvement, the Association for the Advancement of Animal Breeding and Genetics is pleased to elect Kim Bunter as a Fellow of the Association.

MEKONNEN HAILE-MARIAM

Agriculture Victoria Senior Research Scientist and Senior Research Fellow of School of Applied Systems Biology at La Trobe University, Dr. Mekonnen Haile-Mariam has made significant contributions to the field of animal breeding and genetics over the past three decades. Mekonnen has been at the forefront of improving the fertility, health and animal welfare of Australian dairy cattle through genetic improvement. He specialises in developing and updating Australian Breeding Values (ABVs) which are used by dairy farmers to increase productivity through genetic gain.

Mekonnen grew up around animals in Ethiopia, where there are more than 11 million dairy cows, compared to just 1.5 million in Australia. He completed his BSc in Animal Science from Addis Ababa University in Ethiopia in 1982 and went on to do an MSc in Animal Production at Alemaya University of Agriculture. In the early 1990s he swapped warmth for snow and headed to Uppsala in Sweden. He earned his PhD in Animal Breeding and Genetics from the Swedish University of Agricultural Sciences in 1994 and has since focused on the genetic improvement of dairy cattle. During his MSc and PhD studies and after completing his PhD Mekonnen has taught animal breeding at Alemaya University.

A post-doctoral opportunity prompted a move to Australia to join Professor Michael Goddard's research team at Agriculture Victoria in 1999. His early work involved genetically evaluating the somatic cell count as an indicator of udder health (mastitis) to develop and provide a ranking of bulls to dairy farmers, the first research of its kind in Australia. A similar genetic evaluation was developed for fertility, at the time there were limited records to identify the most fertile cows. Mekonnen continued his research focusing on dairy cattle fitness, type, fertility, heat tolerance and methane emission traits and their genetic relationships with milk production traits.

In 2016, Mekonnen was involved in the development of a new gestation length ABV which was released for industry use in 2020 through DataGene. This breeding value allows dairy farmers to select cows that calve within a specific time, as longer gestational length can increase calving difficulty and disrupt the seasonal calving season. Mekonnen also played a key role on updating the calving ease ABV, which has helped to improve animal welfare and reduce veterinary costs, as the calving difficulties can cause cow and calf deaths. His research emphasises profitability, sustainability, and animal welfare, with a particular interest in functional traits such as reproduction and health.

Over the last 20 years, Dr. Haile-Mariam has actively participated in various dairy genetics projects, including "Improved Genetic Evaluation System for the Dairy Industry" and "Validating and Increasing Profit from Dairy Bull Selection in Australia". He has extensively contributed to the DFCRC Fertility Project and the development of the DairyBio Animals' Program (2016-current). These projects aimed to improve and expand breeding values for dairy cattle in Australia.

Dr. Haile-Mariam has extensive experience working with key stakeholders such as Holstein Australia, Jersey Australia, and Dairy Australia. While in his native Ethiopia, he secured funding for the genetic improvement of indigenous livestock in Ethiopia through collaborations with the Swedish University of Agricultural Sciences, funded by the Swedish International Development

Cooperation Agency (SIDA). Mekonnen's research interest and focus while in Ethiopia was genetic improvement of indigenous and crossbred cattle in production environments where genetic antagonistic between adaptation and production is important.

In Oceania and abroad, Dr. Haile-Mariam has been at the forefront of major dairy genetics innovations and insights over the past 25 years. It is fair to say that he had a hand in all the main genetic innovations implemented by ADHIS and now DataGene over the past decade, significantly contributing to the doubling of the genetic gain in the Australian national herds.

Mekonnen is one of the leading experts in using ASReml and is a go to person for statistical analysis in the Computational Biology group of Agriculture Victoria Research. He is a well-liked colleague and an admired supervisor of his PhD students. He is always happy to invest time in showing students how to prepare the input data for ASReml as well as trouble-shooting models. Always done in a kind way with plenty of empathy and understanding.

His work has not only advanced the genetic improvement of livestock in Australia but also demonstrated the importance of genetic and genomic selection globally. He has published more than 100 journal articles and numerous conference papers, which have been cited more than 3,000 times. Dr. Haile-Mariam's dedication to integrating phenomics and other 'omics data into livestock improvement illustrates his innovative approach and commitment to the field. For his extensive contribution to animal breeding and genetics and impactful research in dairy genetic improvement the Association for the Advancement of Animal Breeding and Genetics is pleased to elect Mekonnen Haile-Mariam as a Fellow of the Association.

SUZANNE I. MORTIMER

Sue Mortimer is a Research Scientist, NSW Department of Primary Industries and Regional Development (NSW DPIRD) within Livestock Systems. She joined NSW Department of Agriculture (now NSW DPIRD) on the 14th February 1985 and was based at the Trangie Agricultural Research Centre.

Sue's appetite for agricultural science stemmed from her childhood interest in Australian history, particularly the importance of the wool industry and its contribution to the economy. Sue grew up in Sydney with no real connection to the land, so she studied agriculture, choosing Wool and Pastoral Sciences at the University of New South Wales where she undertook genetics subjects and graduated with first class honours. Sue went on to do her PhD under the supervision of John James, looking at the relative efficiency of index selection and independent culling levels for two traits under a range of conditions and their responses in breeding objective traits, with and without restrictions on genetic gain in one trait. In 1985, at the completion of her PhD Sue was appointed to a position at Trangie Agriculture Research Centre. At the time, the Trangie site had a substantial mix of young and old scientists which Sue found to be exciting. Sue is now based at the NSW DPIRD's Armidale Livestock Industry Centre located at the University of New England, Armidale.

Over the past 40 years, Sue's research has applied quantitative genetics to sheep breeding, particularly by estimating genetic parameters for economically important traits for use in genetic evaluation and breeding program design to improve the profitability of sheep production enterprises. Working with Kevin Atkins, her early focus was on evaluating the relative amounts of genetic and environmental variation in Merino wool production traits. From there her research program has included: the genetics of sheep meat production and eating quality, particularly the relationships of those traits with wool production and quality traits in the Merino breed; genetics of flystrike in non-seasonal rainfall environments; and genetic benchmarking of Merinos using industry data (central test sire evaluation, wether trials). Sue has supervised the research programs of many of the genetic resource flocks conducted at Trangie, as well as being involved in managing several of the Merino central test sire evaluations hosted there. Her involvement in central test sire evaluation continued with the establishment of the Merino Lifetime Productivity site at Trangie. Her extensive involvement in the QPLU$ selection lines and earlier resource flocks at Trangie has had a large impact on Merino genetic improvement in Australia.

During her career, Sue has had an extensive publication contribution (over 150 papers). As senior author or a co-author, she has contributed more than 40 papers to the association's proceedings since 1985. Sue has served as an Associate Editor for Animal Production Science and as a member of the BREEDPLAN and Sheep Genetics Technical Committee.

For her excellent contribution to the genetic improvement of the Australian Merino industry, the Association for the Advancement of Animal Breeding and Genetics is pleased to elect Sue Mortimer as a Fellow of the Association.

MATTHEW SHAFFER

Dr Matthew Shaffer is the Chief Executive Officer of DataGene, Australia's national genetic evaluation centre that provides leadership in herd improvement and data-related services on behalf of dairy farmers. Matt led the transformational change from the former Australian Dairy Herd Improvement Scheme to a contemporary organisation with broad industry support as demonstrated by its membership base of 27 cross-sectoral organisations. At a time when the genetic improvement sector was at cross-roads, Matt was instrumental in establishing the Herd Improvement Industry Strategic Steering Committee, a whole-of-industry approach to tackling significant challenges. Matt's gravitas and personal approach made it work. Matt delivered a well-supported business case that resulted in the formation of DataGene through his leadership, astute ability to manage inter-organisational relationships and unwavering personal commitment. In creating an environment where consultation and collaboration were his team's priorities, he increased resource availability, and this has significantly improved service delivery to farmers and industry.

A pig farm in Pennsylvania, USA was Matt's early home. His first paid job was milking cows for a neighbour, signalling a long career in agriculture. He earned his BA degree in International Relations at Penn State University (USA) in 1993 before completing both a Masters (1994) and PhD (1998) in International Relations at Cambridge University (UK). Matt started his career working for Hancock Agricultural Investment Group as Director of International Operations. While working for Hancock, Matt was transferred to Australia to open a subsidiary and later immigrated with his family. Matt was first introduced to the Australian dairy industry as Chief Executive Officer of the Holstein-Friesian Association of Australia where he was appointed to the board of the Australian Dairy Herd Improvement Scheme and then became Program Manager of Genetics and Data Management at Dairy Australia.

Matt's significant influence on the genetic and herd improvement industries has stretched beyond Australian shores. He is a past chair of the Interbull steering committee of the International Committee for Animal Recording and was instrumental in re-shaping the governance of Interbull. He was a founding innovator in establishing the International Dairy Data Exchange Network. He is also a past president of the World Holstein-Friesian Federation where he was the first president from Oceania and the youngest to ever hold the position. He has been generous with his commitment to global-scale collaboration to advance dairy genetics and is very highly respected across the world for his contribution to the genetics and herd improvement sectors.

The Australian dairy herd improvement industry has been heavily influenced by Matt's leadership over the past two decades. His breadth of experience, networks and focus on delivering for farmers has benefited research and industry organisations and lead to ground-breaking initiatives. Examples include Ginfo (national reference herd of genomic information), modernising the infrastructure that supports the centralised data repository and genetic evaluation system, ImProving Herds, and the rapid acceleration of genetic gain towards an agreed national breeding objective. The successful delivery of DataGene, and its programs, is one of his greatest professional achievements.

Matt is respected by his peers in Australia and overseas for the way he works with people to listen, promote diversity and find common ground, especially when the issues are complicated. He is a leader, mentor and friend. For his outstanding contributions to the genetic and dairy herd improvement industries in Australia, the Association for the Advancement of Animal Breeding and Genetics is pleased to elect Matthew Shaffer as a Fellow of the Association.

STEVEN SKINNER

Steven Skinner completed a Bachelor of Agricultural Economics at the University of New England in 1980, before undertaking a seven year appointment in applied agricultural economic research with the Bureau of Agricultural Economics in Canberra. Steve then spent five years managing a sheep and cattle property, before joining the Agricultural Business Research Institute (ABRI) in 1993.

Throughout his 30 year span at ABRI, Steve played an integral role in the delivery of ABRI's products and services to the beef cattle breeding industry around the world, including the BREEDPLAN genetic evaluation service, Breed Secretariat services and breed registry software. Initially employed as a BREEDPLAN processor, which overlapped with a three year stint as Executive Officer of the Australian Brangus Cattle Association Ltd, Steve was promoted to numerous roles, including manager of the Pedigree/Performance section (appointed 1997), manager of the International Beef Recording Scheme (appointed 2011) and Chief Operational Officer (appointed 2015). Steve also spent eight years as Executive Officer of the Australian Registered Cattle Breeder's Association (ARCBA), representing the interests of ARCBA's breed society members and their breeders.

Throughout his career, Steve worked extensively with ABRI's Australian and international beef breed society clients to maintain the integrity of their studbooks through their use of the Breed Secretariat service and/or breed registry software, and to facilitate genetic improvement within their breeds through the use of the BREEDPLAN genetic evaluation. Always outcome focused, Steve's appreciation for and understanding of the commercial realities of beef breeding was bolstered by his previous experience in managing beef properties. Throughout Steve's career, there have been numerous enhancements made to the BREEDPLAN genetic evaluation, and to the use of DNA technologies in cattle breeding. These include, but are not limited to, the introduction of new traits into the BREEDPLAN genetic evaluation, revisions to selection indexes, and the emergence of DNA technology with applications for parentage verification, management of genetic conditions and Single-Step BREEDPLAN. Steve led ABRI through these changes, ensuring that both he and ABRI staff were ready to assist breed society personnel and seedstock producers understand these new technologies and how they can best be utilised in their own businesses.

In addition, Steve has been a mentor to numerous others in the cattle breeding industry. Throughout his career, Steve has been an advocate for young people in agriculture. He facilitated work experience opportunities for those completing university degrees in agriculture and employed numerous personnel who were newly graduated and/or in the early stage of their career. Many of those employed by Steve early in their careers have gone on to have their own successful careers in the cattle breeding industry (for example, moving on to positions with Meat and Livestock Australia, Australian beef cattle breed societies, state Agricultural Departments and/or service provider roles).

In 2024, Steve was awarded the RW Vincent award by ARCBA for his outstanding service to the Australian cattle breeding industry. For his outstanding contribution to genetic improvement of the Australian cattle industry, the Association for the Advancement of Animal Breeding and Genetics is pleased to elect Steve Skinner as a Fellow of the Association.

ALISON L. VAN EENENNAAM

Professor Alison Louise Van Eenennaam was born in 1963 in Melbourne, Australia. Although her passion for animal genetics was piqued through lectures given by Mike Goddard during her BAgSc (Hons) degree at the University of Melbourne, she initially worked as a Development Scientist for Cooper's Animal Health in Camden, NSW. She then undertook a Master of Science at the University of California, Davis (UCD) in the United States, following which she worked for three years as a University of California Cooperative Extension Dairy and Livestock Extension Advisor in the central valley of California, before returning to UCD to complete a PhD in Genetics with Professor Juan Medrano. Upon graduation, she worked as a Research Scientist and then a Project Leader at Calgene, the small Davis-based company that commercialized the first genetically engineered plant food product, the Flavr Savr tomato.

In 2002 she returned to academia after accepting a position as a Professor of Cooperative Extension in Animal Biotechnology and Genomics at UCD. In 2023, she was promoted to Distinguished Professor, the highest UC campus-level faculty title that can be bestowed and is reserved for those whose work "*has been internationally recognized and acclaimed, and who have achieved the highest level of distinction in their scholarship, teaching, and university/public service*".

Alison has over 100 peer-reviewed publications, and her current research focuses on technical aspects of producing genome-edited livestock (especially cattle and sheep), and policy relating to the regulation of genetically modified and genome-edited organisms. She is an elected Fellow of the American Association for the Advancement of Science (AAAS), the recipient of the 2019 American Society of Animal Science (ASAS) National Rockefeller Prentice Award in Animal Breeding and Genetics, the 2019 University of California Davis James H. Meyer Distinguished Career Achievement Award, and the 2021 U.S. Beef Improvement Federation (BIF) Pioneer Award.

Alison is a gifted communicator, and has been a leading voice and occasional YouTube star in the field of animal biotechnology, in particular the validation of the early generation of DNA marker tests, and the development and application of genetic modification in livestock. Alison presents widely and interacts frequently with a variety of media and has delivered more than 800 oral presentations to global audiences, ranging from cattle producers to Congress. She received the American Association of Public and Land-grant Universities (APLU) National Award for Excellence in Extension; and the 2014 Council for Agricultural Science and Technology (CAST) Borlaug Communication Award.

Alison served as the USDA National Animal Genome Research Program (NRSP8) Bovine Genome coordinator (2018-2023), wrote the BIF guidelines for genome edited animals, and has served on several international advisory committees including the Strategic Steering Committee of the Australian dairy project entitled "ImProving Herds"; the International Advisory Committee of the "Center for Tropical Livestock Genetics and Health" (CTLGH); International Research Advisory Committee for the Genome Canada project "Increasing feed efficiency and reducing methane emissions through genomics"; and as Chair of the Climate Smart Cattle Technical Advisory Group for Ag Research in New Zealand. She has also served on several World Congress Genetics Applied

Livestock Production (WCGALP) Scientific Advisory Committees, and is on the Executive Committee organizing the 2026 WCGALP in Madison, Wisconsin.

She first attended AAABG in 2009 in South Australia, and has since attended almost all conferences. It is fitting that at the 26th AAABG in Queenstown NZ, Alison has been invited to give a keynote presentation. For her contributions to research in animal biotechnology and providing a trusted voice and evidence-based materials on the importance of genetic innovations to varied stakeholders globally, the Association for the Advancement of Animal Breeding and Genetics is pleased to elect Alison Van Eenennaam as a Fellow of the Association.

HONORARY MEMBERS OF THE ASSOCIATION

"Members who have rendered eminent service to the Association may be elected to Honorary Membership…"

Elected September 2009
W.A. Pattie
J.R.W. Walkley

HELEN NEWTON TURNER MEDAL TRUST

The Helen Newton Turner Medal Trust was established in 1993 following an anonymous donation to the Animal Genetics and Breeding Unit to perpetuate the memory of Helen Newton Turner and to encourage and inspire those engaged in animal genetics.

Helen Newton Turner AO

Trustees of the Helen Newton Turner Trust are:

- Ms Kate Lorimer-Ward (Chair), NSW Department of Primary Industries (DPI)
- Prof. Brian Kinghorn, University of New England (UNE)
- Dr Robert Banks, Animal Genetics and Breeding Unit (AGBU) (UNE)
- Prof. James Rowe, National Farmers Federation (NFF)
- Mr Ian Locke, Association for the Advancement of Animal Breeding and Genetics (AAABG)

THE HELEN NEWTON TURNER MEDAL

The Medal is named after Dr Helen Newton Turner whose career with CSIRO was dedicated to research into the genetic improvement of sheep for wool production.

The Helen Newton Turner Medal was first awarded in 1994 to Associate Professor John James and a list of all recipients to date is given below. The Helen Newton Turner Medallist is chosen by Trustees from the ranks of those persons who have made an outstanding contribution to genetic improvement of Australian livestock.

The recipient of the Medal is invited to deliver an Oration on a topical subject of their choice.

Medallists

1994	J.W. James	2003	F.W. Nicholas	2015	A.R. Gilmour
1995	L.R. Piper	2005	K. Hammond	20147	A. Collins
1997	J. Litchfield	2007	L. Corrigan	2019	K.D. Atkins
1998	J.S.F. Barker	2009	R. Hawker	2021	J.H.J van der Werf
1999	C.W. Sandilands	2011	R. Banks	2023	M. Mortimer
2001	G.A. Carnaby	2013	M. Goddard	2025	A.A. Swan

The Oration of the 2023 Medal recipient, Mark Mortimer, is reproduced in these proceedings.

THE HELEN NEWTON TURNER BRIGHT FUTURES AWARD

In 2021, the Trust established a new award, the Helen Newton Turner Bright Futures Award to recognise the achievements of an up-and-coming individual who is showing evidence of establishing a reputation for excellence in the field of animal genetics within Australia.

2021 S.A. Clark
2023 B.J. Walmsley

2023 HELEN NEWTON TURNER MEDALIST ORATION

Mark Mortimer

PHONE CALL FROM JAMES

I was out in the paddock one morning moving a mob of sheep and I received a phone call from James Rowe (Emeritus Professor James Rowe, CEO of the sheep CRC 2000 to 2019). I'd had a long involvement with James through the sheep CRC and after the usual discussions about Farm, Family and Sheep James asked if it would be OK to nominate me for the Helen Newton-Turner Medal. After a pause for processing, I had a lot of reasons why that would not be a good idea. James was his usual persistent self, and I realised that this was not the first time James had tried to talk me into doing something that I was not comfortable with. The previous time was to go on a national TV show by the ABC called The New Inventors. This was due to my work with the Sheep CRC in developing the Pedigree Match Maker system. I look back at that time with good memories, so I said yes to James and thought nothing more about it. I mean, it was only a nomination, there would be plenty of other more worthy people besides myself.

HIDDEN MEANING IN SHEEP DATA

For me playing with sheep data started as a teenager. Starting in 1980 Robert (My Father) started a ram breeding cooperative as part of the AMS (Australian Merino Society). To be a member of the group you had to fleece weigh and body weigh all maiden ewes for selection each year. Most of the members at that stage didn't have computers and it become my job to type up pages of hand recorded data and run simple indexes on them. Computers at that stage had very few distractions and to pad out the time I got spend in the office and not in the yards I would build hand drawn histograms for each drop of animals. One member had a drop of animals that had no tail on the body weight histogram. It was clear that these animals had been removed before fleece weighing. When asked about this at a group meeting this member said, "How could you possibly know that, I didn't even tell my wife". This really highlighted to me that there were hidden secrets just waiting to be unlocked (Granted not always secrets that had to be hidden from your wife!). I have been playing with sheep data looking for hidden secrets ever since.

MENTORS

I certainly wouldn't be writing this if it wasn't for my parents, Robert and Pam Mortimer. My siblings and I were often coopted into data gathering in the sheep yards. It just became natural that if you were working with sheep someone was working with pen and paper and later computers.

Dr Rob Banks (2007 Fellow of AAABG, 2011 HNT Medallist). The first time I met Rob was around our kitten table, he'd come to stay the night and talk with Dad about this new system called BLUP that would produce breeding values. I can clearly remember his excitement about the data (There may have been red wine involved), there was lots of hand draw graphs explaining the concepts involved. My involvement with Rob lasted for the rest of his career and he was always very generous with his time and in sharing his reading lists, thank you Rob.

Dr Kevin Atkins (2007 Fellow of AAABG, 2019 HNT Medallist). While away doing a three-year stint at Orange Ag College I had a subject on research and I chose sheep (I know you didn't see that coming), Dad suggested I meet Kevin Atkins at the NSW DPI. Sitting in Kevin's office piled with books he taught me how to do correlations on sheep data in a spread sheet (Lotus 123) long hand (No simple formulas back then). I still remember the excitement of finding what appeared to me to be hidden relationships in the data. I would later go on to have a long involvement with Kevin through both phases of the Sheep CRC (19 years)

Professor Julius van der Werf (2021 Fellow of AAABG, 2021 HNT Medallist). In order to get a better understanding of genetics I came up with the idea to ring the Armidale UNE book shop and convince them that even though I wasn't a student they could sell and post me the textbook on genetics (Genetic Improvement of Cattle and Sheep, by Geoff Simm). Now I'll be honest, there was a lot in that book I didn't fully understand. But it certainly enabled me to ask the researchers much better questions. The first target of this newfound, half understood knowledge was Julius at a Sheep CRC workshop on genomics. To this day I am still on committees with Julius, and he is still patiently answering my questions.

There are many other people who have influenced my genetics knowledge over the years both in and out of academia, and I would like to thank you all. With special thanks to Daniel Brown, Kim Bunter and the late Andew Swan.

SHEEP CRC & INDIVIDUAL ANIMAL MANAGEMENT ADOPTION.

In 2003 I became involved with the Sheep CRC under their precision sheep management program. The goal was to move industry from mob-based management to individual animal management. This program helped changed how we handle and measure our sheep. I used to really dislike visually reading ear tags and if you couldn't keep your error rate at or under 0.2% you would get a talking to from the old fella. When I heard about this organisation that was offering co-funding and technical support for producers to trial RFID (Radio Frequency Identification) tags I was in. All I had to do was write the software that made the hardware talk to each other because in 2003 no off the shelf products existed. 22 years later and I'm still updating and improving this software. During one of many conversations with James Rowe over this time. James said we are not getting the traction we had hope for on RFID; I need something more, I need something that RFID can do that visual tags cannot. I came back to James with the idea of pedigree matching. Tracking ewes and lambs in the paddock with a panel RFID reader and using this data to determine pedigree. The idea worked! Obviouslly, I thought it was really cool, but also a very niche product that not many people would be interested in. We ended up on the ABC LandLine and The New Inventors shows and won a CRC Excellence in Innovation award. It was also my first look at "Big Data". We had tens of thousands of records from a small number of sheep. Daniel Brown (Brown *et al*. 2011) took this raw data and found hidden meanings one of which is that sheep that turn up to the water site more often have a positive genetic correlation to worm egg count.

If I ask myself the hard question of did the Pedigree Match Maker system help with adoption of individual animal management? History tells us that the answer is no. After several decades of giving presentations on individual animal management across the country, hears my take on why it hasn't been adopted and won't be even though in Australia we now have mandatory RFID.

Three key factors that new tech needs for adoption.

1. Make what I already do easier.
2. Make my decision-making data a byproduct of management.
3. Improve labour efficiency.

Make what I already do easier. For those that were already practicing individual animal management the adoption of the new tech that the CRC was pushing was a game changer. It made life so much easier, but for the average sheep producer to get a pay off they needed to do extra work, and this is a hard sell when they are already time poor.

Make my decision-making data a byproduct of management. An example of this is milk yields in the dairy industry. With the right tech you can gather milk yields through your normal daily routines. Another is yield mapping in cropping, we get all our yield data simply by harvesting our crop. If I want individual fleece data on my sheep it's an extra job. This would be akin to if I wanted cropping yields going out before harvest and hand cutting and weighing small samples through the paddock. An example of this working in sheep is having a pregnancy scanner with RFID capabilities

emailing you a file with the pregnancy status of all your sheep. The problem is we still have low uptake of pregnancy scanning, so for your average producer this would be just another job.

Improve labour efficiency. I have lots of sheep handling equipment that enables old me to do what young me used to do wrestling the sheep down the race, but I'm not more efficient. As a sector this means we fall prey to the Baumol effect (https://en.wikipedia.org/wiki/Baumol_effect). This is the tendency for wages in industries with no increases in labour productivity to rise in response to rising wages in other industries. In our area this is livestock wages having to compete with cropping and mining, two industries that have experienced labour productivity increases. This has seen a swing to cropping where land supports it. In sheep according to MLA (2025) the fastest growing breed type is shedding sheep jumping from 4% in 2022 to 8% in 2024. They need less infrastructure and labour to run. I see this as a one-off jump in labour productivity; it is not driven by continual technological adaptation. The Livestock industry needs technologies that deliver labour productivity gains, the Sheep CRC individual management program was delivering the opposite. Yes, it made your sheep more profitable, but this didn't offset the labour productivity gains achieved by other land use sectors.

DISPLAYING DATA & INSIGHTS

As a ram breeder I work with both scientists/researchers and commercial breeders. Over the years I have spent a lot of time thinking about how to display and communicate all the detailed genetic information that's currently available. Your average commercial breeder is only thinking about about genetics once a year when buying their rams. This information overload can be daunting. I built into my database a graphical reporting system so that commercial breeders could read in plain English the strengths and weaknesses of each animal. Figure 1 was my first attempt, displaying 20 breeding values and their percentile bands. It was at this at this stage I found a book dedicated to just this topic. "The Visual Display of Quantitative Information, by Edward R. Tufte" (If you get the chance, it's a cracking read). One of the takeaway concepts I picked up was the ink to information ratio of your graphic. More information and less distractions.

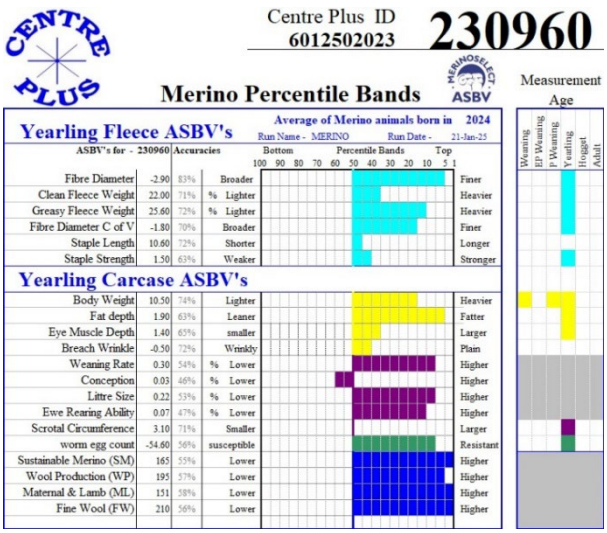

Figure 1. Breeding values and percentile band initial display

This led to the development of Figure 2 with 38 breeding values. Red is below industry average and blue is above. The position of the darker shading is how far above or below the average for each trait. To my surprise this changed how some breeders were selecting their animals.

Figure 2. Revised display of breeding values

It was instantly obvious where each animals' weakness was. I found that breeders would move past animals that filled their core requirements to find an animal that just didn't have a weakness even though it would make them less money. This was even more obvious when I made an interactive version of the graphic. I would have customers asking for combinations of traits that rarely existed in one animal. To best show this, I built an interactive version so that customers could set their targets for core traits and the graphic would show them the trade-offs for all other traits. Customers would tweak the selection tool until they had a ram team with the least amount weaknesses. They were trading off gains in core economic traits to avoid losses in lower economic traits. It turns out this is a well understood concept in behavioural economics and psychology call loss aversion. Kahneman and Tversky (1979) showed that the psychological impact of a loss is roughly twice as powerful as a gain of the same size. With this new understanding of loss aversion, I re-worked my selection tool with the customer choosing one of the Sheep Genetics indexes that best matched their production system. Because the Sheep Genetics indexes are build using an economic model, I am able to show the customer how many dollars per breeding ewe their selections were costing them. I now find that customers are not willing to give up more than a few dollars per breeding ewe to get the mix of traits they are looking for.

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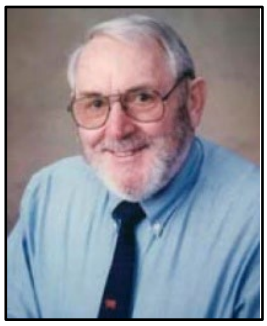
JOHN VERCOE MEMORIAL LECTURE

Initiated in 2007 by the 17th AAABG Committee, in honour of Dr J.E. (John) Vercoe (1936 – 2005), AM, BSc(Agric)(Hons)(Melb), MAgriSc (Hons)(Melb), PhD(Melb), AATS&E, FAIAS, FASAP. John was an Honorary Professor at the University of Central Queensland and an Honorary CSIRO Research Fellow.



John's research contribution to the breeding and management of cattle production in tropical and other stressful environments and belief in the value of interdisciplinary research to solving industry problems significantly improved the productivity of the Northen Australian beef industry. His other passion was international agriculture and John was honoured with executive roles with international research organisations for his contributions to international efforts aimed at reducing world poverty by exploiting the opportunities available from improved livestock production in developing countries. He also mentored many early career scientists both within Australia and internationally.

The Vercoe Lecturers have been:

2007	C.P. Van Tassell
2011	A.L. Van Eenennaam
2015	K. Marshall
2017	H.M. Burrow
2019	D.J. Johnston
2021	B.J. Hayes
2023	P. Boettcher
2025	R.G. Banks