

Advances in breeding of dairy cattle

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Advances in breeding of dairy cattle

Julius van der Werf, University of New England, Australia;
and Jennie Pryce, Agriculture Victoria and La Trobe
University, Australia

Endorsement:

"Professor van der Werf and Dr Pryce are leading experts and have assembled an excellent team for a book describing the current state-of-the-art. This volume will contribute to the dissemination of advanced breeding technology to breeders, scientists and other stakeholders in the dairy industry. There is no doubt that it will also stimulate new developments in an exciting field of research."

Prof. J. A. Lenstra, Utrecht University, The Netherlands; Editor-in-Chief of *Animal Genetics*

Description:

This collection reviews the latest research on dairy cattle genetics and advanced methods of genetic evaluation and selection. The book first assesses the degree of inbreeding and genetic diversity in modern dairy cattle as well as opportunities for crossbreeding. It then reviews research on targeting non-production traits such as fertility, feed conversion efficiency, methane emissions and resistance to disease.

Chapters also survey the latest techniques and advances in genomic selection (GS) in such areas as functional annotation and use of sequence variants to improve genomic prediction. The book also reviews developments in genetic evaluation (GE), including the use of ssGBLUP and multi-trait across-country evaluation (MACE), and the application of these techniques to breeding programmes.

Key features:

- Particular focus on the challenges inbreeding and lack of genetic diversity in modern dairy cattle
- Explores ways of improving non-production traits in cattle for more sustainable production
- Detailed review of advances in genomic selection (GS), such as functional annotation and use of sequence variants to improve genomic prediction, and genetic evaluation (GE), including the use of ssGBLUP and multi-trait across-country evaluation (MACE)

Audience:

Researchers in university departments of dairy science; dairy cattle breeding companies; the dairy farming community; government and other agencies supporting the dairy sector.

Editors' details:

Dr Julius van der Werf is Professor of Animal Breeding and Genetics at the University of New England, Australia. He is co-Editor in Chief of the journal *Genetics, Selection, Evolution* and Associate Editor of the *Journal of Animal Breeding and Genetics*. He is also Programme Leader for Genetics at the Cooperative Research Centre (CRC) for Sheep Industry Innovation.

Dr Jennie Pryce is Principal Research Scientist in the Agriculture Research Division at the Department of Economic Development, Jobs, Transport and Resources of the State of Victoria, Australia. She leads the Animal's Programme in DairyBio, jointly funded by Dairy Australia and the Victorian Government. Dr Pryce is also a Principal Research Fellow at La Trobe University, Australia and in 2016 was awarded the J.L Lush Award for Animal Breeding by the American Dairy Science Association.

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