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 de 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 at Agriculture Victoria Research part of the State Government of Victoria, Australia where she lead the Animal’s Programme of DairyBio. 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.
Table of contents:

Part 1 Current developments in dairy breeding programs
1. Genetic and phenotypic improvements in temperate dairy systems: an overview: Filippo Miglior, University of Guelph, Canada

Part 2 Managing genetic diversity
2. Assessing inbreeding and genetic diversity in the Holstein breed using pedigree and genomic approaches: Christine Baes, University of Guelph, Canada
3. Genetic diversity in dairy cattle: variation within and across breeds: Kor Oldenbroek, Wageningen University, The Netherlands
4. Opportunities for managing diversity in modern dairy cattle breeding programs: Christian Maltecca, North Carolina State University, USA
5. Opportunities and challenges in crossbreeding dairy cattle in temperate regions: Bradley Heins, University of Minnesota, USA

Part 3 Breeding objectives and genetics of new traits
6. Recent developments in multi-trait selection in dairy cattle breeding: Peter Amer, AbacusBio Ltd., New Zealand
7. Advances in dairy cattle breeding to improve fertility/reproductive efficiency: Mekonnen Haile-Marim, Agriculture Victoria Research, Australia
8. Advances in dairy cattle breeding to improve feed conversion efficiency and methane emissions: Mike Coffey, SRUC, UK
9. Improving phenotypic prediction in dairy cattle breeding using the metagenome: Oscar Gonzalez, INIA, Spain
10. Advances in dairy cattle breeding to improve resistance to mastitis: John Cole, USDA-ARS, USA
11. Advances in dairy cattle breeding to improve resistance to hoof disorders/lameness: Christa Egger-Danner, ZuchtData, Germany
12. Use of mid infra-red spectral data to predict traits for genetic selection in dairy cattle: Nicolas Gengler, University of Liege, Belgium
13. Advances in dairy cattle breeding to improve heat tolerance: Thuy Nguyen, Agriculture Victoria Research, Australia
14. Advances in dairy cattle breeding to improve longevity: Roel Veerkamp, Wageningen University, The Netherlands

Part 4 Genomics and genetic selection
15. Developments in genomic selection (GS) in dairy cattle breeding: Flavio Schenkel, University of Guelph, Canada
16. Linking genotype to phenotype: improving functional annotation in dairy cattle breeding: James Koltes, Iowa State University, USA
17. Finding causal variants for monogenic traits in dairy cattle breeding: Matt Littlejohn, Livestock Improvement Corporation, New Zealand

Part 5 Genetic evaluation
18. Genetic evaluation: use of genomic data in large-scale genetic evaluations in dairy cattle breeding: Joel Weller, ARO, Israel
20. Genetic and genomic dairy cattle evaluations in developing countries: Raphael Mrode, Scotland’s Rural College, UK and International Livestock Research Institute, Kenya

Part 6 Reproductive technologies and breeding programs
21. Developments in the use of embryo technologies: Trudee Fair, University of College Dublin, Ireland
22. The use of gene editing techniques in dairy cattle breeding: Alison Van Eenennaam, University of California-Davis, USA
23. Development of dairy breeding programs: Didier Boichard, INRA, France

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