

ANIMAL PRODUCTION SCIENCE

CONTENTS Volume 60, Issue 1, 2020, 1–191

AUSTRALASIAN DAIRY SCIENCE SYMPOSIUM 2018: DAIRY SCIENCE FOR PROFITABLE AND SUSTAINABLE FARMING

Foreword i

The frontiers of biomedical science and its application to animal science in addressing the major challenges facing Australasian dairy farming

Murray D. Mitchell, Mallory A. Crookenden, Kanchan Vaswani, John R. Roche and Hassendrini N. Peiris 1–9

Potential solutions to the major greenhouse-gas issues facing Australasian dairy farming

R. J. Eckard and H. Clark 10–16

Defining the key attributes of resilience in mixed ration dairy systems

D. G. Barber, M. J. Auldist, A. R. Anstis and C. K. M. Ho 17–25

The role of forage management in addressing challenges facing Australasian dairy farming

Lydia M. Cranston, Keith G. Pembleton, Lucy L. Burkitt, Andrew Curtis, Daniel J. Donaghy, Cameron J. P. Gourley, Kerry C. Harrington, James L. Hills, Luke W. Pembleton and Richard P. Rawnsley 26–35

Manipulating the rumen microbiome to address challenges facing Australasian dairy farming

Catherine Stanton, Sinead Leahy, Bill Kelly, R. Paul Ross and Graeme Attwood 36–45

Getting value from artificial intelligence in agriculture

Matthew J. Smith 46–54

Defining resilience in pasture-based dairy-farm systems in temperate regions

B. Horan and J. R. Roche 55–66

Water-quality issues facing dairy farming: potential natural and built attenuation of nitrate losses in sensitive agricultural catchments

Ranvir Singh and David J. Horne 67–77

White clover or nitrogen fertiliser for dairying under nitrate leaching limits?

David Chapman, Ina Pinxterhuis, Stewart Ledgard and Tony Parsons 78–83

Identifying current challenges and research priorities to guide the design of more attractive dairy-farm workplaces in New Zealand

C. R. Eastwood, J. Greer, D. Schmidt, J. Muir and K. Sargeant 84–88

Feasibility of innovative sharemilking arrangements

Eva Schröer-Merker and Peter Tozer 89–95

A meta-analysis comparing four measurement methods to determine the relationship between methane emissions and dry-matter intake in New Zealand dairy cattle

Arjan Jonker, Peter Green, Garry Waghorn, Tony van der Weerden, David Pacheco and Cecile de Klein 96–101

A comparison of profitability between farms that milk once or twice a day

J. P. Edwards 102–106

Grazed chicory, plantain or ryegrass–white clover alters milk yield and fatty acid composition of late-lactating dairy cows

M. C. Mangwe, R. H. Bryant, M. R. Beck, A. E. Fleming and P. Gregorini 107–113

Establishing plantain in spring in existing perennial ryegrass pastures in northern Tasmania

Pieter Raedts and Adam Langworthy 114–117

Association among pasture-level variables and dairy cow responses to supplements

C. Poole, D. J. Donaghy, R. R. White and J. R. Roche 118–120

Continued on next page

- Use of reflexive interactive design to address challenges to New Zealand dairy farming
Álvaro J. Romera, Mark Neal and Bram Bos 121–126
- Nutritive characteristics of perennial ryegrass cultivars: have they changed over time?
A. R. Lawson, K. Giri, M. E. Rogers, S. K. Muir, K. B. Kelly, K. Rentsch, S. Chandra and J. L. Jacobs 127–132
- New Zealand dairy farmers preference investments in automation technology over decision-support technology
B. T. Dela Rue, C. R. Eastwood, J. P. Edwards and S. Cuthbert 133–137
- Incorporating data into grazing management decisions: supporting farmer learning
Lydia Turner, Lesley Irvine and Sue Kilpatrick 138–142
- The effect of perennial ryegrass ploidy and white clover inclusion on milk production of dairy cows
Brid McClearn, Trevor Gilliland, Clare Guy, Michael Dineen, Fergal Coughlan and Brian McCarthy 143–147
- Effect of weather on activity and lying behaviour in clinically healthy grazing dairy cows during the transition period
S. J. Hendriks, C. V. C. Phyn, S.-A. Turner, K. R. Mueller, B. Kuhn-Sherlock, D. J. Donaghy, J. M. Huzzey and J. R. Roche 148–153
- Preliminary assessment of the ability of detainment bunds to attenuate sediment and phosphorus transported by surface runoff in the Lake Rotorua catchment
Brian Levine, Lucy Burkitt, Dave Horne, Leo Condron, Chris Tanner and John Paterson 154–158
- Setting targets for the Irish dairy industry
Laurence Shalloo and Liam Hanrahan 159–163
- Predicting milk fatty acids and energy balance of dairy cows in Australia using milk mid-infrared spectroscopy
P. N. Ho, L. C. Marett, W. J. Wales, M. Axford, E. M. Oakes and J. E. Pryce 164–168
- Profitable and resilient pasture-based dairy farm businesses in New Zealand
Mark Neal and John R. Roche 169–174
- Defoliation dynamics, pasture intake and milk production of dairy cows grazing lucerne pastures in a partial mixed-ration system
K. A. D. Ison, D. G. Barber, M. A. Benvenuti, N. Kleinitz, D. Mayer and D. P. Poppi 175–179
- Prediction of quarter level subclinical mastitis by combining in-line and on-animal sensor data
Momena Khatun, Peter C. Thomson, Cameron E. F. Clark and Sergio C. García 180–186
- White clover incorporation at high nitrogen application levels: results from a 3-year study
C. Guy, D. Hennessy, T. J. Gilliland, F. Coughlan, B. McClearn, M. Dineen and B. McCarthy 187–191