



Dairy Soils and Fertiliser Manual

Australian Nutrient Management Guidelines

Compiled and edited by
The Dairy Soils and Fertiliser Manual
Development Team



Previous versions: ‘Fertilising Dairy Pastures’

Developed by the Soils and Fertilisers State-wide Activity Team of the Target 10 Program

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Previous Version (2005)



Fertilising Dairy Pastures

A manual for use in the Target 10
Soils and Fertilisers Program

Compiled and Edited by
The Target 10 Soils and Fertilisers
Statewide Activity Team

Second Edition

Dairy Australia

Department of
Primary Industries
Victoria

University of
Melbourne

United Dairyfarmers
of Victoria



Acknowledgements

The new *Dairy Soils and Fertiliser Manual: Australian Nutrient Management Guidelines* is an online resource intended for use by Australian dairy farmers, advisors, industry service providers and the dairy education sector. The *Dairy Soils and Fertiliser Manual* was adapted from the *Fertilising Dairy Pastures* manual which was last published by the Department of Primary Industries Victoria in 2005 for Victorian dairy farmers participating in the Target 10 Soils and Fertiliser program. The [Dairy Moving Forward](#), Nutrient Management Community of Interest acknowledge the enormous amount of work contributed over several years by many authors, and the generous contribution of the copyright of this material by the Department of Environment and Primary Industries Victoria.

Previous Versions – *Fertilising Dairy Pastures*

Fertilising Dairy Pastures was first developed in 1997 with input from a wide range of people involved in the dairy industry from all over Victoria. The original development team included Helen Chenoweth, Gregg Cook, Kate Dawson, Geoff Drysdale, Alex Goudy, Frank Mickan, Daryl Poole, Phil Shannon, David Tucker, David Pasztaleniec and Sylvia Vagg.

Major contributors were Nick Austin, Anne Crawford, Jo Crosby, Richard Eckard, John Gallienne, Rob Greenall, Cameron Gourley, Frank McKenzie, Geoff Mundy, Frank Mickan, David Nash, Rob O'Connor, John Roche, Peter Schroeder, Ken Slee, David Tucker, Graeme Ward, Colin Waters, Austin Brown, Geoff Morrow, Ken Peverill, Sue Schryver, Frank Tyndall and Sylvia Vagg.

Other contributors included: David Tucker - compiling and editing; Frank Mickan - final editing; John Gallienne - technical editing; Don Cook - information on the Northern Irrigation Region; and Liz Jacobsen - formatting and copy editing. Many individual farmers, farmer groups, and farmer-led steering committees across Victoria provided guidance and feedback.

Major contributors to the 2005 edition were: Alex Goudy, Frank Mickan, Helen Chenoweth, Mik Harford, Nadine Markham, Scott McDonald, Barrie Bradshaw, Jo Crosby, Rob O'Connor, Mark Imhoff, Frank McKenzie, Graeme Ward, Cameron Gourley, Richard Eckard, and Andrew Spiers.

Current version: *Dairy Soils and Fertiliser Manual*

There has been an enormous effort by over thirty individuals in reviewing and updating what is now known as the '*Dairy Soils and Fertiliser Manual*'. Many people have generously contributed their time, in addition to their existing workloads.

It is difficult to attribute the contribution of individual authors to specific chapters of the *Dairy Soils and Fertiliser Manual*, as there have been a number of contributing authors to each chapter since they were first written in 1997. The exceptions are the new chapters; 'Soil Biology' written by Declan McDonald (Department of Environment and Primary Industries Victoria), and 'Keeping Nutrients on Farm' written by Peter Day.

The following people have contributed significantly to the development of the *Dairy Soils and Fertiliser Manual*:

Project Coordinator: Rick Kowitz

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CARING FOR OUR COUNTRY





Background

In 2010, the [Dairy Moving Forward Committee](#) identified a number of strategies to address the priority: *'Improve extension of nutrient management principles and practices; and to achieve a more rigorous, objective approach to nutrient management at a farm level'*. The strategies included:

- An agreed whole of industry consensus on nutrient management principles
- Increased industry confidence in nutrient management principles
- Investment in training, professional development and support for information sharing

The expert group also determined five key investment areas to deliver these strategies including:

- A national and regional network of simple test demonstrations/validation activities
- A nationally agreed framework for the delivery of regional nutrient management extension
- National agreement on a set of nutrient management principles together with a framework to integrate these principles into the decision making process
- Development and delivery of formal education on new nutrient management principles and practice
- A national and regional nutrient management RD&E innovators network

To deliver on a number of these strategies, Dairy Australia initiated the project "Dairy Guidelines: Managing soil acidity through improved nutrient use efficiency", better known as Fert\$mart. Industry consultation during the Fert\$mart project showed there was unanimous support for developing a trusted source of science for fertiliser management which was specific to Australian dairy farms.

Around the same time, the National Centre for Dairy Education Australia (NCDEA) also identified the need to update the *Fertilising Dairy Pastures* manual (DPIV 2005) as a national learning resource for soil and fertiliser management courses. The combined investment of resources has led to the development of the *'Dairy Soils and Fertiliser Manual: Australian Nutrient Management Guidelines'*.



Foreword

Australian dairy farmers are amongst the most efficient dairy producers in the world. To survive in this competitive industry, the production and utilisation of pasture as our main feed source will be the key to the future success of our dairy industry.

Many farmers are now finding that when they get soil and fertiliser management 'right', they can produce more feed at no extra cost, and with careful planning, fertiliser becomes a strategic tool to boost feed when it's most needed.

The aim of the on-line *Dairy Soils and Fertiliser Manual* is to provide farmers and advisors with a planning approach and the know-how to achieve this. The manual integrates the *Fert\$mart* planning approach which is underpinned by the internationally recognised *4Rs* nutrient stewardship philosophy of using the *Right Source* of fertiliser, at the *Right Rate*, in the *Right Place* and at the *Right Time*.

The *Dairy Soils and Fertiliser Manual* was built upon the *Fertilising Dairy Pastures Manual* developed by the Victorian Department of Primary Industries for the successful Target 10 Soils and Fertiliser Program. The manual has now been updated and expanded to include all Australian dairy regions, the latest research, and current recommended practices for soil and fertiliser management.

The *Dairy Soils and Fertiliser Manual* will help farmers and advisors to make more informed cost-effective fertiliser management decisions. Pasture production depends on sound use of fertilisers, and it is important to understand soil conditions and what is limiting production if best results are to be achieved from fertiliser use. Regular soil testing is necessary to make informed decisions on fertiliser use, and the ability to interpret these results is the key to making the most cost-effective fertiliser choice. It is also important to understand the balance of nutrients in our farming systems.

The environmental impact of nutrients lost from our farming systems can be severe, and lost nutrients are also wasted money. An improved understanding of nutrient management will assist in the well-being of our waterways and in maintaining a healthy environment well into the future. A new chapter, 'Keeping Nutrients on Farm', has been introduced to help farmers and advisors with this increasingly important area.

Another area with increasing interest has been soil biology and soil health. Many dairy farmers are now recognising that productive soils are those with good soil structure, optimum fertility and are biologically active. The new chapter on soil biology removes some of 'mystery and myths' around managing soil organisms in a productive dairy system.

It is important to recognise that the *Dairy Soils and Fertiliser Manual* is also an investment in our future - Our future dairy farmers, and our future advisors. This has been, and will continue to be, a key resource for dairy education, particularly for the National Centre for Dairy Education Australia (NCDEA).

The Dairy Moving Forward Steering Committee is grateful to the organisations and individuals that have contributed towards this manual.

Noel Campbell
Chair, Dairy Moving Forward Steering Committee