

# FARMING with NATIVE TREES



**A GUIDE for FARMERS  
from NORTHLAND  
to WAIKATO**

Edited by  
**Mike Dodd and Helen Ritchie**





Reproduction of material in this Bulletin for non-commercial purposes is welcomed, providing there is appropriate acknowledgment of its source.

To obtain further copies of this publication, or for information about other publications, please contact:

Publications Officer  
Private Bag 3020  
Rotorua  
New Zealand  
*telephone:* +64 7 343 5899  
*facsimile:* +64 7 348 0952  
*e-mail:* publications@scionresearch.com  
*website:* www.scionresearch.com

### National Library of New Zealand Cataloguing-in-Publication data

Farming with native trees : a guide for farmers from Northland to Waikato / edited by Mike Dodd and Helen Ritchie. (New Zealand indigenous tree bulletin, 1176-2632 ; no. 5) Includes bibliographical references.  
978-0-478-11018-0  
1. trees—New Zealand. 2. Forest management—New Zealand. 3. Forests and forestry—New Zealand.  
I. Dodd, Mike, 1967- II. Ritchie, Helen, 1967- III. Series. IV. New Zealand Forest Research Institute.  
634.90993—dc 22

ISSN 1176-2632

ISBN 978-0-478-11018-0

© New Zealand Forest Research Institute Limited  
2007

### Production Team

Jonathan Barran — photography  
Teresa McConchie — layout design  
Ruth Gadgil — technical editing  
Judy Griffith — editing and layout

### DISCLAIMER

*In producing this Bulletin reasonable care has been taken to ensure that all statements represent the best information available. However, the contents of this publication are not intended to be a substitute for specific specialist advice on any matter and should not be relied on for that purpose.*

*Inclusion of product names in illustrations does not constitute endorsement of the product.*

*NEW ZEALAND FOREST RESEARCH INSTITUTE LIMITED and its employees shall not be liable on any ground for any loss, damage, or liability incurred as a direct or indirect result of any reliance by any person upon information contained or opinions expressed in this work.*

Front cover: New native plantings and mature trees on a Taupiri bull farm.

 Sustainable Farming Fund  
www.maf.govt.nz/sff

 ensis  
 CSIRO  SCION  
THE JOINT FORESTS OF CHINA & NEW ZEALAND

# **FARMING WITH NATIVE TREES**

## **A Guide for Farmers from Northland to Waikato**



**Edited by Mike Dodd and Helen Ritchie**

**New Zealand Indigenous Tree Bulletin No. 5**

**Ensis, Private Bag 3020, Rotorua, New Zealand  
2007**

## Foreword

Historically, the attitude of New Zealanders toward our native forests could only be described as ambivalent. Some forest areas were used wisely and sustainably by Maori, but vast tracts were burnt during the moa-hunting period. The arrival of the European settler saw these early conflagrations pale into insignificance as huge areas of forest were cleared to create the privately owned farms for which the settlers had journeyed from the other side of the world. This land-clearing exercise, beginning before 1840, continued for a century and a half. It has been only in the last few years that landowners have come to understand the intrinsic values of our remnant native forests.

And foresters were little better than the farmers, spurred on by Governments who had little knowledge of the true worth of our native forests but who had decided that native trees grew too slowly. They disregarded the tradition of 70-year or longer rotations in Europe, and continued the clearance of native bush to make way for the ubiquitous *Pinus radiata*.

In recent times more and more New Zealanders have come to recognise the value of our native forests. This goes beyond conservation objectives, and protecting small remnants to enhance biodiversity and improve the landscape. It is now recognised that native trees can grow quite fast when managed correctly, they produce timbers of world class, and can be used for a variety of purposes on the farm — beyond just filling in that dirty gully out the back.



This Bulletin helps to close the circle from bush clearance, through neglect and disdain, to planting for conservation purposes, and finally to making full use of our unique native plants. Their qualities and uses are immense. Go and use the valuable insights in this Bulletin to enhance the value of your land and environment.

Ian Barton  
Chairman, Tāne's Tree Trust  
June 2006

## Table of Contents

Foreword	2
Introduction	4
Chapter 1: Why have native trees on farms?	5
Chapter 2: Benefits of native trees on farms	8
2.1 Shade and shelter	8
2.2 Erosion and flood control	11
2.3 Riparian planting and water quality	14
2.4 Aesthetics and property value	18
2.5 Creating and enhancing habitat	21
2.6 Timber production	24
Planting and management	26
Economic analysis	29
Harvesting native trees from natural forests	30
Harvesting planted indigenous forest	31
2.7 Non-timber products	33
2.8 Carbon sinks	36
Chapter 3: Managing native trees on farms	39
3.1 Planning and priorities	40
3.2 Fencing	42
3.3 Matching plants to sites	44
3.4 Planting design	45
3.5 Establishing plants	47
3.6 Maintenance	48
3.7 Covenants	50
3.8 Tax provisions	52
References	53
Appendix I: Annotated bibliography	55
Appendix II: Resources and contacts	58
Appendix III: Native plant names	60

## INTRODUCTION

There is a widespread assumption in New Zealand farming circles that agriculture and native plants don't mix. The purpose of this Bulletin is to combine the experiences of farmers and researchers to demonstrate that they can and do mix well.

In 2001, the Parliamentary Commissioner for the Environment, Morgan Williams, challenged us to “contribute to the actions needed and ... keep open a robust debate about the roles of native plants on private land”. The actions needed were in three areas: questioning current mindsets; overcoming lack of knowledge on sustainable use; and changing legal and policy frameworks. This Bulletin is a response to that challenge.

The vision of Tāne's Tree Trust is “To see the majority of New Zealand landowners successfully planting and sustainably managing indigenous trees for multiple uses by 2020”. The majority of New Zealand landowners (by area at least) are farmers, and so this Bulletin is designed for farmers.

Throughout the Bulletin, farmers' ideas on the useful functions that native plants play within their farm system are highlighted alongside case studies and information from researchers, consultants, and agency staff, to blend experience with up-to-date knowledge.

The Bulletin begins with a general section looking at why native plants are valued by farmers and what challenges farmers encounter when managing native plants on their farms. The second section follows up on the “why” theme by discussing in more detail the various specific purposes for native trees on farms.

The third section has more of a “how” theme and presents a guiding framework for managing native plants in a farm landscape. At the end there is a supplementary section on where to get more information and a glossary of scientific names for the plants mentioned in this Bulletin, since we have used common names throughout.

The information collated in this Bulletin has come out of a Tāne's Tree Trust project called “Opportunities for Native Trees on Farms”, funded mainly by the Ministry of Agriculture and Forestry's Sustainable Farming Fund. While the project was limited to the northern North Island, it is anticipated that many of the concepts and applications will be more widely relevant.



Developments are occurring all the time — in emerging tax law and regulations about timber harvest, in new products being developed from native plants, and in techniques for establishing native trees for various purposes. This Bulletin provides the most current information available at the time of printing.

## CHAPTER 1 – WHY HAVE NATIVE TREES ON FARMS?

New Zealand native forests are unique. They are attractive and provide habitat for our native fauna. Native plant species are well adapted to local climate and soils and, under the right conditions, are often found to regenerate naturally in many retired or less intensively managed areas.

### Most appropriate land management:

- erosion control
- managing runoff and drainage
- increasing fertiliser effectiveness

### Recreation:

- hunting
- walking
- camping

### Personal interest and satisfaction:

- challenge of growing trees
- learning opportunity
- satisfying workplace

### Stewardship and heritage:

- biodiversity
- wahi tapu/urupa
- prevent future destruction

### Conservation and habitat gains:

- attract native birds
- enhance stream life
- beneficial insects

### Productive returns:

- timber
- honey
- eco-tourism

### Improved land value:

- capital gain
- future house site
- improved saleability

### Better stock management and welfare:

- shade and shelter
- reduce mustering time
- easier break feeding

### Education and research:

- school visits
- scientific research
- conservation advocacy

### Additional environmental outcomes:

- cooling stream water
- carbon sink
- beneficial insects

But what are the values of native trees from a farmer's perspective? As with most land-use decisions on farms, there are multiple reasons why farmers choose to plant or maintain existing native trees. When asked for their reasons, farmers at the workshops mentioned a wide range of motivations.

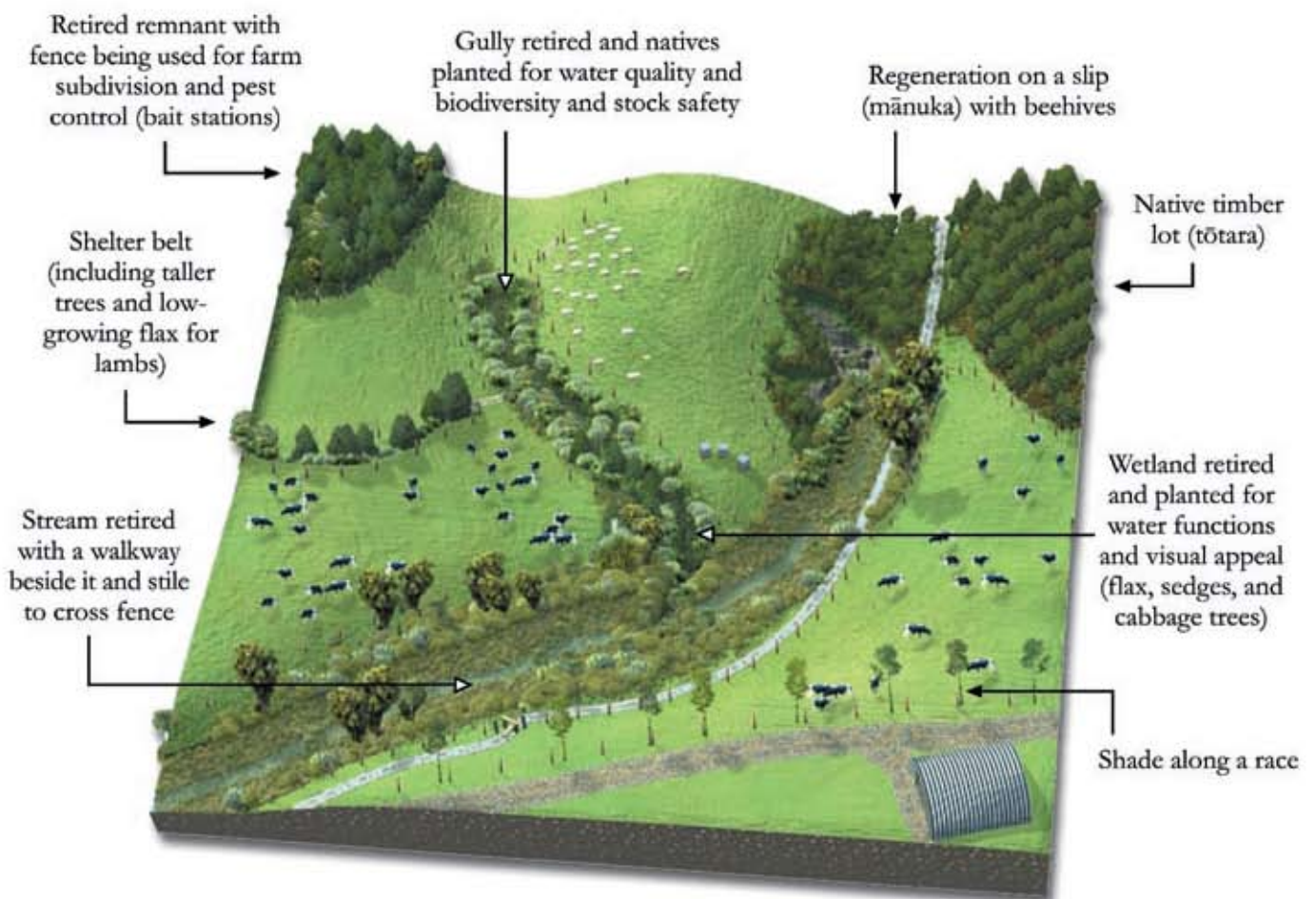
## KEY ISSUE:

### If I retire land from grazing to plant or protect natives can I get a productive return?

#### Farmers said:

- The best use for some land is to have it in native bush because it is marginal land for grazing. Either it is too steep and erosion-prone to grow good grass, or it is too wet and difficult to drain.
- These same areas are often dangerous to stock and by fencing them you can protect stock and save time mustering.
- The fences are also useful for farm subdivision, giving better grazing management and pasture utilisation. Stocking rates can often increase as more grazing pressure can be applied when dangerous areas are fenced off and fertiliser use and weed control are focused on the better land.
- The environmental spin-off is that there is cleaner run-off from the farm when erodable land is retired and wet areas are fenced to act as filters.
- There is also personal satisfaction in having native trees on the property. They look good and add variety to the farm and value to the property.
- They bring back birds, and are a way of preserving nature for the future.
- They give shade and shelter for stock and a visual screen for deer.
- They provide for recreation such as hunting and shooting or bush walking and educational visits.
- They also give good protection for wahi tapu or urupā.
- Natives can be planted for a future timber harvest.
- In the meantime there can be other values gained from native bush — things like honey, firewood, ecotourism or homestays, and medicinal benefits for people and for stock.

There are many opportunities to use native plants on farms for different purposes. Here is a range of ways in which native plants can be incorporated into a working farm landscape.







**Why have native trees on a dairy farm?**

*Brett and Gayle Farrell own and run a dairy farm at Parakao, west of Whangarei. They admit they are not foresters — “we grow grass to sell milk, and do it well, so we’re sticking to it” — and so their enthusiasm for native plants has to fit in with their farm productivity goals. For them the key considerations relate to waterways, good subdivision, and shade and shelter.*

Brett says there is “nothing good about having animals near creeks”. They have lost stock in the lagoon, and the coliform levels in the streams are high enough to restrict how they use the water to wash the milking plant. So now all waterways are fenced with 2-wire electric fencing. Recent improvements in technology mean that all the fences stay on permanently, and seem to keep the long grass from growing into the wires. Even the boundary fences are electric, making it less trouble to repair them after floods or branch falls.

Brett says their first fences were too close to the stream edge and there was some bank erosion, so now they fence further back. This does lead to rank grass growth, which Brett doesn’t like — hence the need to plant the banks. Gayle says that so far they have used kahikatea, tī tōki, taraire, and some exotics. She is definitely looking to plant more flax in future, and thinks that “if you plant flax, you get other trees”. Ongoing maintenance is the big issue, so the Farrells prefer to fence out only a small amount each year, planting densely for weed control.

Brett likes to keep the cows out of awkward corners and loops in the streams, so he puts in straight

fences and plants up the corners. For him, improved pasture utilisation and less damage to soil more than compensates for any loss of grazing area. With their odd-shaped totara remnants, the Farrells put a fairly straight fence around the core area of trees, inevitably leaving a number of extra shade trees in the paddock. However, they find that dry cows winter grazing in these paddocks start damaging the trees as well as the soils.

The Farrells value shelter for livestock in winter and, to a lesser extent, shade in summer. They use the sheltered paddocks next to the bush in bad weather, breaking the rotation if need be. But Brett is not in favour of shelterbelts along races as they prevent the race drying out in wet periods and may slow down cow flow. He observes that cows do produce less milk on hot days from unshaded paddocks, but thinks they make up for it over the night grazing. Still, he’d rather see cows have access to shade if they need it.

Brett and Gayle bought the property for its potential, and the existing native trees were a factor in their purchase choice. They fully expect that their efforts to manage the native trees well will enhance the value of the farm over time.



*Farrell’s dairy farm features existing fenced stands and new plantings.*



*Leaving the odd tree in paddocks provides extra shade for stock.*



Ensis is an unincorporated joint venture between Scion (a New Zealand Crown Research Institute) and CSIRO Forestry & Forest Products. Under its Native Species Research Programme, the planting and management of a range of native tree species are being evaluated from timber production as well as environmental and social standpoints.



For information on management of native species, contact Dr David Bergin, Ensis, Private Bag 3020, Rotorua. Phone (07) 343 5899; Fax (07) 343 5332; email: david.bergin@ensisjv.com



Tane's Tree Trust was formed in 2001 to encourage New Zealand landowners to plant and sustainably manage native trees for multiple use. The objectives of the Trust are: promotion of native forestry as an attractive land use option by consolidating and advancing the

state of knowledge of native tree species; maximising economic incentives for establishing natives; resolving legal and political obstacles to the planting of natives; and encouragement of knowledge-sharing amongst stakeholders.

If you are interested in joining the network (subscriptions range from \$30 for individual members to \$110 for corporate members), or require further information, contact the Chairman: Ian Barton, 105 Cowan Rd, Hunua, RD3, Papakura. Phone (09) 292 4825; Email [ibtrees@wc.net.nz](mailto:ibtrees@wc.net.nz).



The purpose of the Sustainable Farming Fund (SFF) is to fund projects that will contribute to improving the financial and environmental performance of the land-based productive sectors. The SFF provides grants for projects lasting from 1 to 3 years. Members of the SFF team are available to provide assistance to applicant groups.

### INDIGENOUS TREE BULLETIN SERIES

*Farming with Native Trees — A Guide for Farmers from Northland to Waikato* is the fifth in this series of New Zealand Indigenous Tree Bulletins which summarise the latest information about planted and naturally regenerating native tree stands. The focus is on production as well as environmental and social objectives.

- Bulletin No. 1 is *Totara Establishment, Growth, and Management*.
- Bulletin No.2 is *Kauri Ecology, Establishment, Growth, and Management*.
- Bulletin No. 3 is *Native Trees — Planting and Early Management for Wood Production*
- Bulletin No. 4 is *Pohutukawa Ecology, Establishment, Growth, and Management*

Subjects for future Bulletins include: management of the beech species; establishment of native hardwood species; and assessment and monitoring of native plantations.

### FUNDING ACKNOWLEDGMENTS

This Bulletin has been printed with the generous support of the following organisations:



Supporting organisations:

