



Smart Farming For Healthy Bees

— BEE FRIENDLY LAND MANAGEMENT —

REGION - OTAGO October 2009



OTAGO



Photo: Sascha Koch © Landcare Research

Honey bee on Native broom (*Carmichaelia* spp.)

STRONG AND HEALTHY BEES ARE A CRITICAL PART OF PROFITABLE AGRICULTURE

To ensure the future of farming, all farmers need to play their part in protecting the honey bee. The bee is one of the hardest workers in horticulture and agriculture; about \$3 billion of our GDP is directly attributable to the intensive pollination of horticultural and specialty agricultural crops by bees. In addition there is a huge indirect contribution through the pollination of clover, sown as a nitrogen regeneration source for the land we farm. This benefit flows on to our meat export industry through livestock production and sales.

The beekeeping industry is facing some of its biggest challenges with increasing bee pests and diseases. This is of great concern because, in terms of the food we eat, about a third of the calories and three-quarters of the diversity rely on bees for pollination.

The most important issue leading to a bee crisis in NZ is declining floral resources and the subsequent scarcity of quality pollen, which leads to bee malnutrition. The key to good bee health is a continual supply of diverse pollen and nectar from natural sources.

Bees consume pollen as a protein and vitamin source and nectar for energy. While gathering these resources, they move pollen from one plant to another thus benefiting the farm by pollinating crops. Availability of quality pollen resources is critical during spring when beekeepers are building up bee populations for pollination services. Any shortfall leads to protein stress that weakens bees making them more susceptible to diseases and pests (e.g., varroa mite); it also dramatically slows the queens breeding output and this results in low field strength and under-performing pollination services.

Today, farmers can reverse this trend by choosing bee friendly trees and shrubs for planting in waterway margins, windbreaks, field edges, under pivots and along roadsides. Fortunately a number of shelter and erosion control plants have abundant flowers to feed bees so selecting multi-purpose plants is smart farming for healthy bees.

This fact sheet will help you provide pollen that these vital creatures need. To find out where to source the plants on this list please go to www.plantfinder.co.nz or ask at your local nursery.



FEDERATED FARMERS OF NEW ZEALAND

Federated Farmers of New Zealand

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Native Trees and Shrubs for Bees

Native plants are the best choice to increase "on-farm" native biodiversity and benefit both the honey bee and the environment.

Cabbage tree (*Cordyline australis*) --- Tree, 15m, Oct-Dec
Kānuka (*Kunzea ericoides*) --- Tree/Shrub, 15m, Sep-Feb
Kohuhu (*Pittosporum tenuifolium*) --- Tree, 6m, Oct-Nov
Koromiko (*Hebe salicifolia*) --- Shrub, 3m, Jan-Feb-(Apr)
Manuka (*Leptospermum scoparium*) - Tree/Shrub, 5m, Sep-Mar
Matagouri (*Discaria toumatou*) --- Tree/Shrub, 5m, Oct-Jan
Narrow-iv lacebark (*Hoheria angustifolia*) --Tree, 10m, Dec-Mar
NZflax (*Phormium tenax*) --- Tufted, up to 5m flw stalk, Nov-Dec
N. I. Broom (*Carmichaelia australis*) --- Shrub, 2m, Oct-Feb
Prickly mingimingi (*Leptecophylla juniperina*) --- Shrub, 2m
Scented broom (*Carmichaelia odorata*) --- Shrub, 3m
South Island broom (*Carmichaelia arborea*) --- Tree/Shrub, 3m

Sth. Rata (*Metrosideros umbellata*) --- Tree/Shrub, 15m, Nov-Jan
Tree fuchsia (*Fuchsia excorticata*) --- Tree/Shrub, 12m, Jun-Jan
Weeping kowhai (*Sophora microphylla*) --- Tree, 10m
Weeping matipo (*Myrsine divaricata*) --- Shrub, 3m, Jun-Nov
Coastal only
Five-finger (*Pseudopanax arboreus*) --- Tree, 8 m, Jun-Aug
Hinau (*Elaeocarpus dentatus*) --- Tree, 20m, Oct-Feb
Horoeka (*Pseudopanax crassifolius*) --- Tree, 15m, Jan-Apr
Kāmahi (*Weinmannia racemosa*) --- Tree, 20m, Dec-Jan
Lemonwood (*Pittosporum eugenioides*) --- Tree, 10m, Oct-Dec
Ngaio (*Myoporum laetum*) --- Tree/Shrub, 10m, Jul-Apr
Three-finger (*Pseudopanax colensoi*) --- Tree/Shrub, 5 m, Oct-Mar

Non-native Trees and Shrubs for Bees

Exotic plants are good choices because many are multi-purpose for farming and have excellent pollen and nectar.

Apple (*Malus xdomestica*) --- Tree, Sep-Nov
Hazelnut (*Corylus avellana*) --- Shrub, 4.5m, Sept-Nov
Peach (*Prunus persica*) --- Tree, Aug-Oct
Pear (*Pyrus communis*) --- Tree, Sep-Oct
Weeping willow (*Salix babylonica*) --- Tree, 25m, Aug-Sep
Blue gum (*Eucalyptus globulus*) --- Tree, 40m, Aug-Nov

Silver dollar gum (*Eucalyptus cinerea*) --- Tree, 15m, Dec-Feb
Snow gum (*E. pauciflora* subsp. *niphophila*) - Tree, 18m, Sep-Nov
White ironbark (*Eucalyptus leucoxylon*) --- Tree, 30m, Mar-Nov
Yellow box (*Eucalyptus melliodora*) --- Tree, 30m, Dec-Feb
Coastal only
Tree lucerne (*Chamaecytisus palmensis*) - Tree, 5m, May-Oct

To match plants to your site, consult a plant adviser, e.g. Blueskin Nursery Fax: 03 482 2013 Email: blueskingardencentre@xtra.co.nz

The plants listed above are examples of good Bee Plants that are not on any list of pest plants (weeds) for Otago. See our website for further examples and guidelines. Although some plants are good for bees they are on pest plant lists because they are invasive. Planting them would be detrimental to farmers or to the environment and in some cases even illegal (e.g., Unwanted Organisms list). Lists of pest plants change regularly so it is best to consult your regional authorities.

1 Otago Regional Pest Management Strategy is listed at <http://www.biosecurityperformance.maf.govt.nz/>
 Plants listed in the strategy must not be planted for various reasons. For advice in your area, contact Otago Regional Council: Phone 0800 474 082 or Email info@orc.govt.nz or see www.orc.govt.nz.

For example do not plant:

Gorse (*Ulex europaeus*) --- Shrub
Scotch broom (*Cytisus scoparius*) --- Shrub

2 The National Pest Plant Accord (NPPA) is listed at www.biosecurity.govt.nz/nppa.
 Plants listed on the NPPA are unwanted organisms under the Biosecurity Act 1993 and cannot be sold, propagated or distributed even though some are high value bee plants

For example do not plant:

Crack willow (*Salix fragilis*) --- Tree
Grey willow (*Salix cinerea*) --- Tree/Shrub
Lantana (*Lantana camara*) --- Shrub
Scottish heather (*Calluna vulgaris*) --- Shrub

3 The Department of Conservation (DOC) Weed List contains around 20 high value bee plants that are aggressive environmental weeds. To protect the environment, please consult a DOC weed expert for your situation www.doc.govt.nz/conservation/threats-and-mpacts/weeds/docs-weed-work/

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