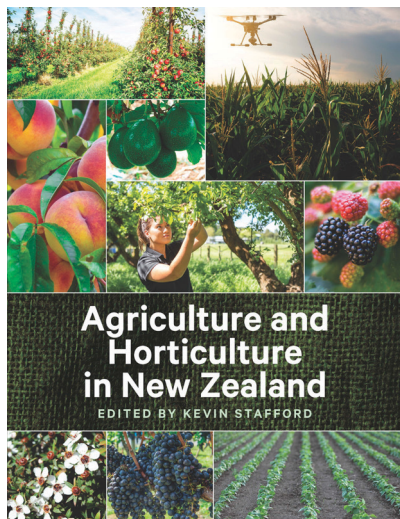


# Agriculture and Horticulture in New Zealand

EDITED BY KEVIN STAFFORD



\$55

CATEGORY: Agricultural science

ISBN: 978-0-9951230-4-5

ESBN: TBC

THEMA: TVK, TVS, TVR, 1MBN

BIC: TVK, TVR, TVS

BISAC: TEC003030, TEC003110,  
TEC003040, BUS070010

PUBLISHER: Massey University Press

IMPRINT: Massey Texts

PUBLISHED: July 2021

PAGE EXTENT: 272

FORMAT: Limpbound

SIZE: 250 x 190 mm

RIGHTS: World

AUTHOR RESIDENCE: Manawatū,  
New Zealand

## AN ESSENTIAL GUIDE TO NEW ZEALAND'S DYNAMIC AGRICULTURAL AND HORTICULTURAL INDUSTRY

Written by experts from Massey University's School of Agriculture and Environment, this is an accessible and straightforward overview of the business of growing plants for human and animal consumption, as well as forestry and flower production. It has a focus on New Zealand practices, and information on social issues, environmental costs, food safety, chemical use, post-harvest management and availability.

Chapters cover pasture and forages, field crops and vegetables, kiwifruit, grapes, pip fruit and summer fruit. There are also useful chapters on soils and precision agriculture, and how new technologies are improving productivity and sustainability.

The book is aimed at high school students studying agriculture, and year one tertiary students undertaking degrees or diplomas in this subject. Those studying agribusiness, resource management, nutrition, food technology and ecology will also find it helpful.

### SALES POINTS

- Overview of the growing agricultural and horticultural industries in New Zealand written by experts
- Specific content on local practices not available in other publications, as well as information on social issues, environmental costs, food safety, chemical use, post-harvest management and availability
- Valuable guide for agricultural science students at all levels, lifestyle block owners, farmers and media
- In the same series as the highly regarded *Livestock Production in New Zealand*, also edited by Kevin Stafford.

### ABOUT THE EDITOR

**Professor Kevin Stafford** is a veterinarian with an interest in animal behaviour and welfare. He is the author of several books, including *Livestock Production in New Zealand*. He is a fellow of the both the Royal College of Veterinary Surgeons and the Australian New Zealand College of Veterinary Scientists.

### PRINTABLE A3 POSTER AVAILABLE UPON REQUEST



## Chapter 3 The New Zealand Arable Industry

James Millner



- winter melon (bottle-neck melon) (*C. melo cv. Inodorus*)
- cantaloupe melon (rock melon) (*C. melo cv. Cantalupensis*)
- snake melon (*C. melo cv. Flexuosus*)
- Oriental sweet melon (*C. melo cv. Mohean*)

### Mushrooms

The production of mushrooms is very much a niche industry in New Zealand, involving highly specialised growing conditions. It is a growth industry, and in recent years there has been an upsurge in new varieties of mushrooms (mostly of Asian origin) being introduced to New Zealand consumers. Aside from the fresh-market options, there is a considerable market in processed and dried mushroom products. The most popular mushrooms now grown are:

- button or cremini mushrooms (*Agaricus bisporus*)
- shiitake mushrooms (*Lentinus edodes*)
- oyster mushrooms (*Pleurotus ostreatus*)
- enoki mushrooms (*Flemingia velutipes*)
- truffle (*Tuber melanosporum*) — outdoor production only

Commonly, mushrooms are produced in dark, climate-controlled rooms. Mushroom spores are collected and used to inoculate growing medium that then becomes the spawn. The spawn is applied to compost and the cycle of production begins.

### Spouted beans and seeds

This classification of vegetable was previously categorised under the name 'bean sprout'. There is a consistent demand for spouted beans

and seeds. The plants are harvested at such an immature stage of their life that they have a limited lifespan and require good post-harvest management. The key crops used to produce these products are:

- alfalfa
- lentils
- chickpeas
- adzuki beans
- kabocha (kabocha radish seed)
- sunflower (shoots)
- mustard
- mung beans
- snowpeas
- blue peas
- cress
- broccolini
- soybeans

### Indoor production practices

In any indoor system, the advantage for the producer is the ability to manipulate the environment to produce crops to a predetermined criteria and market. By managing the environmental factors, growers can work their system to specific harvest requirements including date and volume. In any modern glasshouse or greenhouse system, growers now have access to computer programs that can be used to respond to production parameters such as climatic and water determinants. It is relatively easy to use computer systems to manage temperature, airflow, nutrient additions and so on. For growers, the cost of investing in the establishment of an indoor production unit is set against the returns it is likely to generate.

The other mitigating factor for growers is that some crops respond better to indoor systems than others. Many of culinary herbs can be

### Parks and gardens

Parks and gardens are more horticulturally friendly than street-tree situations. In parks and gardens, the soil fertility and water factors are usually much better than for street plantings, and horticulturists have better control over growing conditions. Parks and gardens come in all shapes and sizes — indoors or outdoors, urban or rural, small or large, public or private sites — and sometimes have horticultural themes like rose gardens or native plants. A typical public park in New Zealand will have elements such as a rose garden, a display glasshouse, a native plant area and various types of flower display gardens. A key aspect of parks and gardens is the visual and artistic qualities of the plants, which can involve anything from the

artistic composition of a group of plants to the design of whole gardens. As well as the health and environmental benefits, parks and gardens have the added human dimensions of aesthetic, cultural and historical values.

An excellent example of these values is the Hampton Court Palace gardens in London. Originally created as a pleasure garden in the 16th century, and well as a royal park today, the grounds have vast significance for the events that took place there. The gardens are also an example of certain design styles. The Palace Gardens were originally a fish farm in medieval times, but were converted by William and Mary (1689–1702) to house her collection of plants from around the world. It was named in the 18th century, and, as the image shows, requires precise horticulture to get the lawns, topiary, and flower displays just right (Hampton



The Pond Gardens at Hampton Court Palace, London (Image M. MacKen)



The Indian Char Garden at Hampton Court Palace (Image M. MacKen)

Court's 60 acres of gardens are managed by 38 staff and the on-site nursery grows 160,000 plants each year (Hampton Court Palace Gardens and Estate, n.d.).

In New Zealand we do not have decorative gardens dating from the fifteenth century, although we do have examples of early food production sites. However, we have public parks that illustrate the artistic aspects of horticulture and the use of plants for visual and design displays. An excellent example is Hamilton Gardens. A series of more than 20 themed gardens illustrate design themes, different eras or cultural styles such as Italian, American, Japanese and Chinese cultures (Hamilton Gardens, n.d.). These gardens are now a major tourist attraction for Hamilton and attract around one million visitors per year.

A key horticultural challenge for parks and gardens is to grow a range of plants and get them all to grow and flower in the right way at the right time. While production horticulturists have to know absolutely everything about the crops they grow, say apples and pears, the number of crops is relatively limited, whereas the horticulturist who manages something like the Hamilton Gardens has to know the requirements of many species.

Another example of this kind of horticultural challenge is the growing of tropical plants for the conservatory display houses found in most towns or city parks. Some of these display houses contain a cornucopia of plant life from many different origins. Not only does the horticulturist need to know the requirements of the many