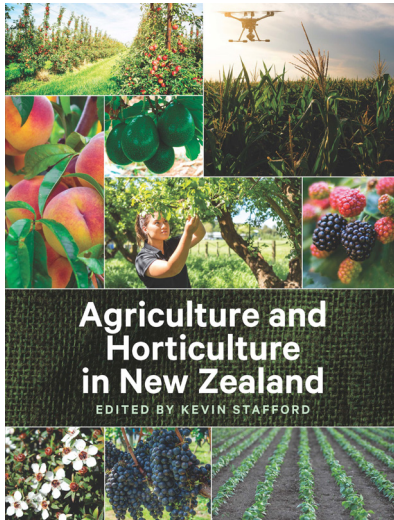




# Agriculture and Horticulture in New Zealand

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## 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 (Duneydow melon) (*C. melo cv. feodora*)
  - cantaloupe melon (rock melon) (*C. melo cv. Cantaloupensis*)
  - snake melon (*C. melo cv. Flaccida*)
  - Oriental sweet melon (*C. melo cv. Malawa*)
- Mushrooms**
- button or brewer mushrooms (*Agaricus bisporus*)
  - shiitake mushrooms (*Lentinus edodes*)
  - oyster mushrooms (*Pleurotus tallis* or *pleurotus*) (*Pleurotus pulmonarius*)
  - cremini mushrooms (pink or golden needle mushrooms) (*Flammulina velutipes*)
  - truffles (*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.

**Sprouted beans and seeds**  
This classification of vegetable was previously categorised under the name 'bean sprout'. There is a consistent demand for sprouted 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
- kidney (haricot red) seeds
- sunflowers (soybean)
- mung bean
- snowpeas
- blue peas
- cress
- broccoli
- 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, air-flow, 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 and environmentally beneficial, parks and gardens provide 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, the grounds have since been used for a wide range of purposes. The gardens are also an example of certain design styles, 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, the grounds have since been used for a wide range of purposes. The gardens are also an example of certain design styles, 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



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



The Indian Char Bazaar Garden at Hampton Court Palace (Image: M. MacKay)

Court's 60 acres of gardens are managed by 38 staff and the on-site nursery grows 180,000 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 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 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 forms from many different origins. Not only does the horticulturist need to know the requirements of the many