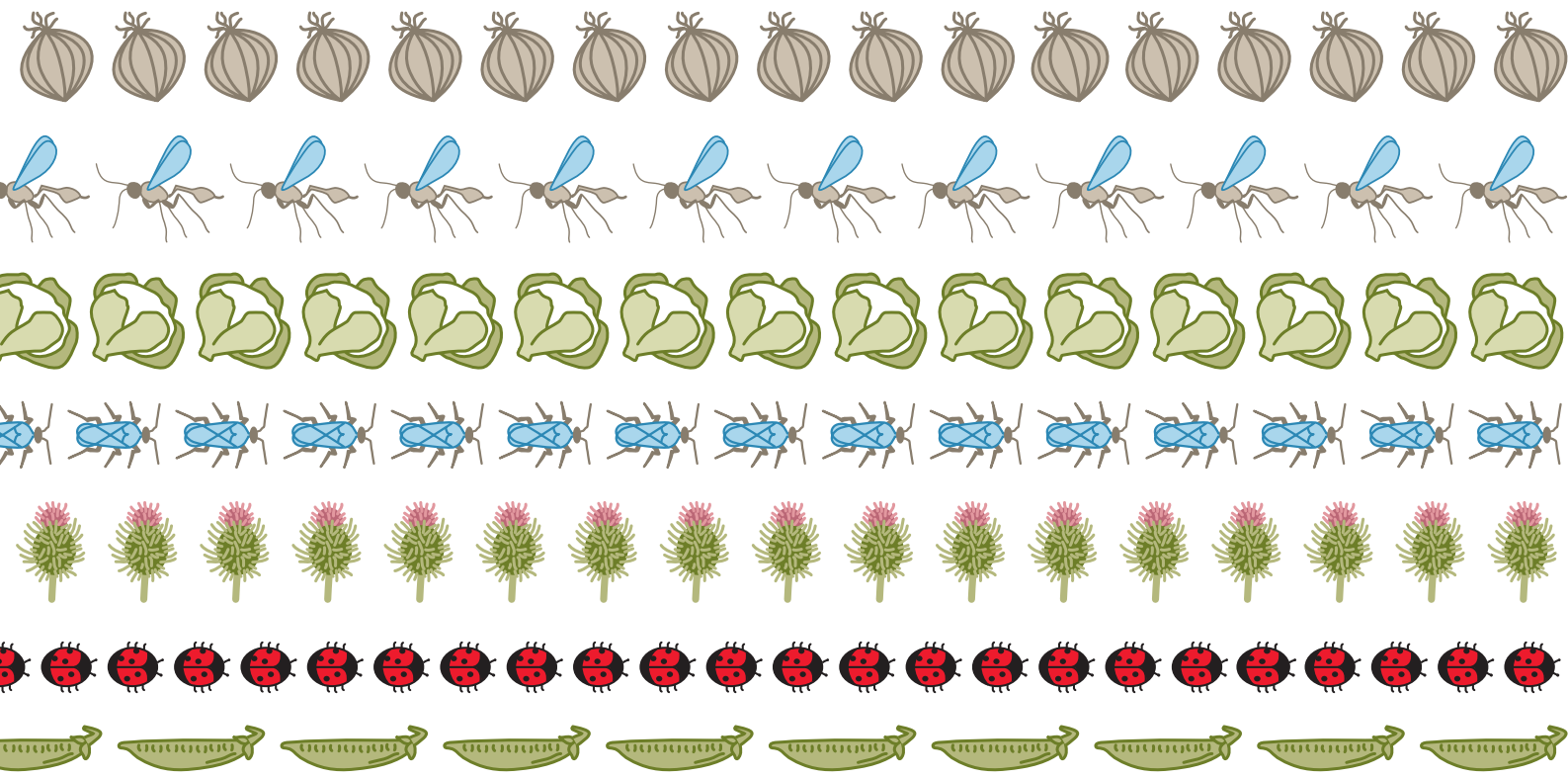
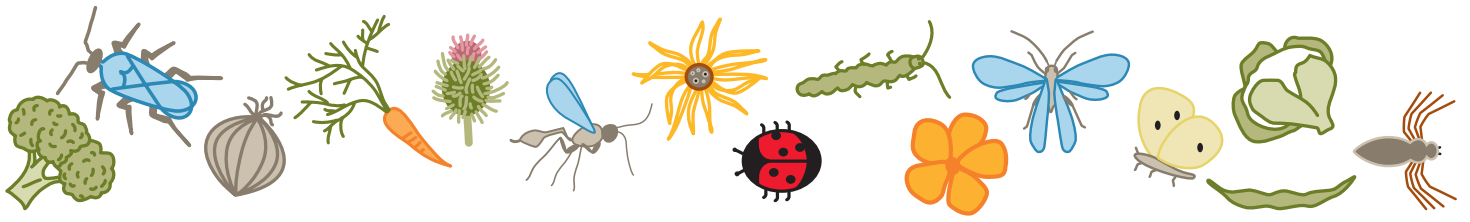


VEGETABLE INTEGRATED  
 PEST MANAGEMENT (IPM) IN TASMANIA

FELICITY WARDLAW

DEPARTMENT OF PRIMARY INDUSTRIES, WATER AND ENVIRONMENT  
 CONTRIBUTING AUTHORS: ANDREW BISHOP & LOIS RANSOM





## About this manual

This manual will form part of an education and training package on Integrated Pest Management (IPM) of vegetable insects, diseases and weeds in Tasmania. The manual is not an all encompassing document on vegetable IPM. Rather it is a base level manual which covers the main features of an IPM program. It outlines the management options that can be implemented to assist you to reduce your reliance on chemicals for pest control in vegetable cropping systems.

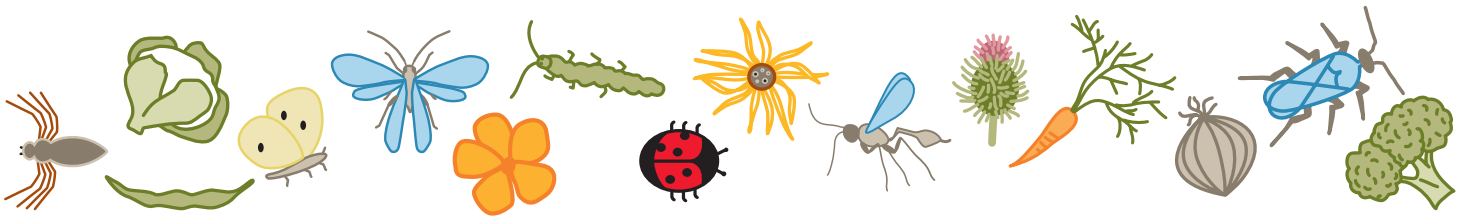
The manual provides you with an introductory section on IPM. This introduces the components of IPM, the techniques and tools that can be used to manage pests, such as crop monitoring, and then a step by step process on designing an IPM system for your cropping situation.

Following this is a section on case studies of various IPM techniques that have been demonstrated throughout the life of the project that led to the production of this manual. It is anticipated that further techniques will be demonstrated and added to the manual in the future.

The following three sections provide photographic and detailed information on the diseases, insects and weeds you are likely to find in potato, carrot, bean, pea, broccoli and onion crops in Tasmania. Each crop is covered individually for diseases and insects. Following each crop is a table, which indicates the various control methods or tools that can be used to manage the specific pest. For each insect and disease mentioned, a detailed description of life cycle, damage, and management options is included in the appendix of the manual.

This edition of the manual was funded by grower levies through Horticulture Australia Ltd.





**This manual has been written by:**

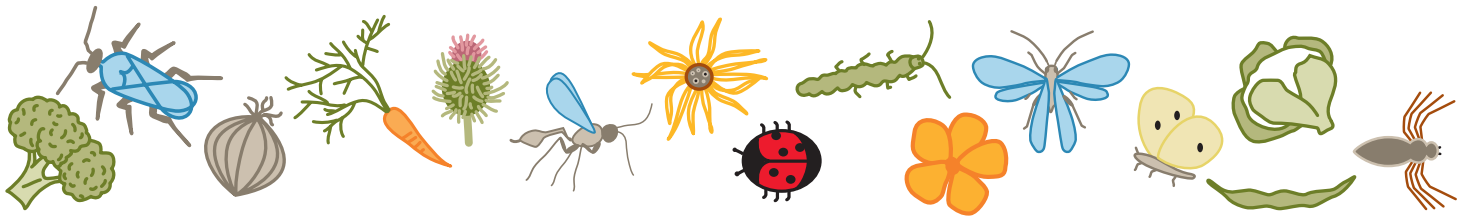
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### **Disclaimer**

The information in this manual is collated from project experience, expert advice and reference sources and is offered in good faith as a useful guide for growers wishing to implement integrated pest management (IPM) practices. However, as each grower's circumstances are unique, it is your responsibility to closely and continuously monitor your own production and make the necessary adjustments and decisions to optimise results.



## Introduction

When the pesticide DDT was first introduced in 1939, it was seen as a miracle. It gave immediate and complete pest control with no noticeable affect to humans or the environment. Sixty-five years after the release of DDT, hundreds of chemicals are used as a 'quick fix' to control insects, diseases and weeds. But just as the unintended consequences of using DDT finally led to its removal from the market, many more recently developed chemicals are facing a similarly uncertain future. As quickly as new chemicals are released, an existing one is lost to the development of pest resistance, or registration is removed due to problems associated with human and environmental health.

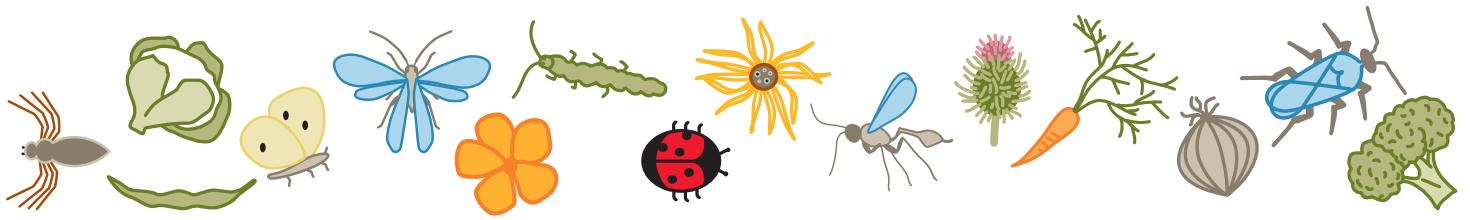
Integrated Pest Management (IPM) in vegetable cropping was developed as a result of the increasing problems associated with pesticides, and is now adopted all over the world as a means to manage pests without relying solely on chemical pesticides. It enables better pest management decisions to be made so that the best possible combination of control options is used to control the pest while reducing the reliance on pesticides. IPM does not mean never using pesticides – it just means that chemicals are used when other options won't work, and the choice is to use 'softer' chemicals that are less harmful to the environment and to beneficial insects.

The driving force behind the push for cleaner, safer produce grown with minimal pesticide use is coming from international market requirements, consumers and growers who want to grow cleaner and safer produce. Many European countries will only accept produce grown under certain certification standards such as EUREPGAP, which requires growers to demonstrate good agricultural practice. EUREPGAP incorporates Integrated Pest Management (IPM) and Integrated Crop Management (ICM) practises within the framework of commercial agricultural production. Adoption of IPM/ICM is regarded by EUREPGAP as essential for the long-term improvement and sustainability of agricultural production.

IPM can and will work to manage your crop pests. It requires you to adopt a combination of patience, knowledge, skills and a change in mindset to move away from traditional pesticide practices. Unlike the 'quick fix', short-term results achieved with pesticides, IPM is a long term and sustainable approach to managing crop pests that enables you to grow and provide produce using environmentally sustainable practices that are safer for you, your family and consumers.

Felicity Wardlaw





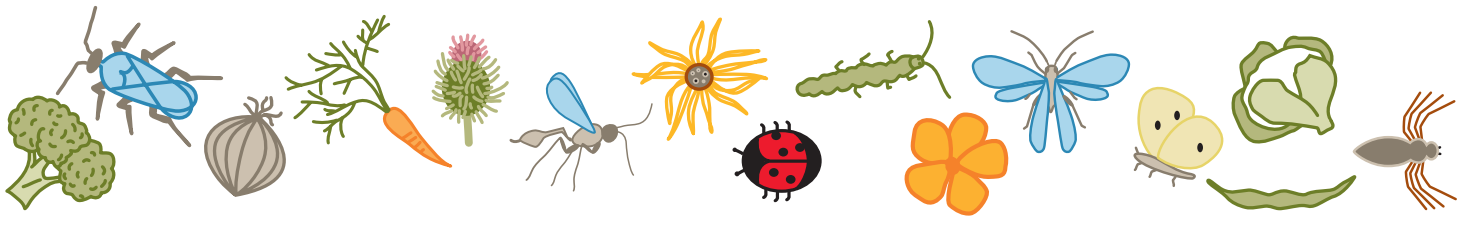
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- Integrated Pest Management in Lettuce Information Guide. Produced by Sandra McDougall, Tony Napier, Joe Valenzisi and Andrew Watson from New South Wales Agriculture's National Vegetable Industry Centre, Yanco and John Duff, Glen Geitz and Tom Franklin Queensland Department of Primary Industries National Vegetable Industry and Golden State Foods.
- QLD DPI: Persley and Cooke (1994) Disease of Vegetable Crops, (ISBN 0 7242 53726)
- DPI/DSE: Field guide to pests and diseases and disorders of vegetable brassicas. © State of Victoria, Department of Primary Industries 2000.
- RITB: Rural Industry Training & Education (Tasmania) Inc. for use of tables from the TRITB Farm Chemical Training Manual.
- ©Denis Crawford - Graphic Science, PO Box 796 Stawell. Victoria. 3380. [www.graphicsscience.com.au](http://www.graphicsscience.com.au)
- GRDC: Insects: The Ute Guide. Dennis Hopkins and Melinda Myles. ISBN 07308 4294 0



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## 1. Vegetable IPM

Introduces you to IPM, the components of an IPM system, crop monitoring, chemical resistance, improving spray coverage and how to design an IPM program.

## 2. IPM Practices

Case studies of IPM compatible techniques, including brush weeding, crop monitoring, insect exclusion netting and cover cropping.

## 3. Diseases

Photographs, descriptions and control options for the most common diseases found in onions, carrots, peas, beans, broccoli and potatoes.

## 4. Insects

Photographs, descriptions and control options for the most common insects and beneficials found in onions, carrots, peas, beans, broccoli and potatoes.

## 5. Weeds

Introduction to integrated weed management and various weed management techniques. Includes photographs and descriptions of common Tasmanian weeds.

## 6. Appendices

Detailed descriptions of insects and diseases, a list of all the chemical groups and useful references and contacts to obtain further information.

