



National Vegetable  
Extension Network  
VICTORIA - NORTHERN,  
WESTERN & SOUTH EASTERN

# Native vegetation insectaries

## – permanent habitat for beneficial insects

### Key messages

- Planting an insectary of flowering native vegetation for beneficial insects is a simple farm practice that can be achieved at relatively low cost and without impeding production
- Diversity and abundance of beneficial insects is key to building farm resilience, particularly against seasonal variations and new pest incursions
- Insectaries are not necessarily regular ‘native plantings’; there are much more complex interactions occurring which should be considered when planting an insectary, including species selection
- The best way to decide where to carry out your planting and what to plant is to talk to other growers and advisors who have had experience in setting up an insectary.

### What’s a native vegetation insectary?

On-farm insectaries are areas of flowering plants that attract and maintain beneficial insect populations by providing shelter from highly disturbed crop areas as well as alternative food sources, namely pollen and nectar.

The goal of on-farm insectaries is to enhance diversity and abundance of beneficial insects on your farm to build resilience, particularly against seasonal variations and pest incursions. Acting as a ‘fixed home address’ for beneficial insects to interact with your crop, they complement cultural and biological control methods of your integrated pest management (IPM) program.

On-farm insectaries provide ‘SNAP’ for beneficial insects:

- **S**helter for overwintering and safety from weather and higher order predators
- **N**ectar to provide a source of carbohydrate energy
- **A**lternative prey to maintain beneficial populations until they are needed in the crop
- **P**ollen which provides the protein necessary for egg production.

The advantages of planting native vegetation compared to non-native vegetation are numerous and include reduced likelihood of harbouring pests and diseases that can affect crops, longer flowering windows, lower maintenance and water requirements, and increased habitat and connectivity that better support native biodiversity including native beneficial insects.

In addition to providing better pest management, insectaries can perform multiple functions and provide multiple benefits, as outlined in Table 1.

**Table 1: Pros and cons of native vegetation insectaries**

Pros	Cons
Pollination and other ecosystem services (e.g. carbon sequestration, increased infiltration)	Potential harbouring of pests and diseases (e.g. rabbits or light brown apple moth)
Habitat and food source for insects and other wildlife (e.g. insect corridors, birds)	Upfront costs
Multipurpose design (e.g. shelterbelts/windbreaks, perennial groundcover)	Maintenance (e.g. bushfire management, occasional irrigation)
Biodiversity values and environmental stewardship (consider offsets in planning applications)	Potential competition for resources with crop
Meet obligations of Environmental Assurance Programs	
Income diversification (e.g. wildflower/cut flowers)	
Long-term cost savings	
Aesthetics	

### Developing an insectary

There are a couple of easy steps to consider when developing an insectary:

1. Locate areas on your property that you can use to plant an area of flowering plants. You can be creative with what you classify as your insectary (see FAQ below).
2. Establish the insectary by selecting the appropriate plant species and location to best achieve your goal(s). Refer to Table 2 for a list of plant species suitable to the Greater Melbourne area developed by the Port Phillip and Westernport CMA. Some plants have been referred to as “hero” plants for their remarkable ability to host beneficial insects, for example:
  - *Bursaria spinosa* (sweet bursaria) – hosts lacewings, ladybeetles, assassin bugs, spiders
  - *Austrodanthonia* sp. (wallaby grass) – hosts brown lacewings, assassin bugs, spiders
  - *Leptospermum continentale* (prickly tea-tree) – hosts ladybeetles, lacewings, spiders
3. Consider monitoring the activity of beneficials and possibly pests in and near the insectary using sweep nets or observation.

### Native vegetation insectary FAQs

#### Where should I plant my insectary?

- Ideally within 50m of crop areas but more distant plantings can still provide big benefits especially if they help connect other areas of native vegetation
- Grass plantings under vines/trees, inter-row or end of row
- Embankments – flowering shrubs and native grasses provide good erosion control
- Surrounding a dam for erosion control and water filtration (grasses, sedges), being mindful of the integrity of dam walls and embankments
- Land unsuitable for cropping
- Existing headlands, buffers or shelterbelts – new plantings or create an understorey – and hedgerows
- Container (or banker) plantings around each block
- Grassy drainage lines – native grasses provide excellent low maintenance groundcover and habitat for beneficial insects
- Garden beds.

#### Which species should I plant? (See Table 2)

- Choose a combination of low, middle and upper storey species for diverse habitat
- Maximise flowering time – aim for ‘year-round’ flowering for a permanently available nectar source
- Select plant species that host beneficials and not pest species (e.g. *Leptospermum continentale* hosts several beneficial insects but can also host light brown apple moth).

#### How much will it cost?

- An insectary can be established for as little as \$200, and can be developed over time
- The main costs are making land available, tube stock or seeds, planting and maintenance (e.g. irrigation and weed control). In some areas fencing may be necessary to protect young plants from browsing animals.

#### Other tips:

- Think about the long-term goals you want to achieve
- Talk to others who have set up insectaries
- Consider planting a small ‘test’ area before embarking on a large insectary planting – see what grows well and monitor flowering activity and capacity to attract beneficial species.

#### Additional resources

**Australian Native Plants Selector APS Query** – a program that enables the selection of Australian native plants to suit specific requirements (search for nectar and insects).

<http://anpsa.org.au/download.html>

**Growing Australian Plants** – provides information on how to grow Australian native plants and where to buy them.

<https://www.anbg.gov.au/growing-plants/index.html>

**Field and landscape management to support beneficial arthropods for IPM on vegetable farms** – a vegetable levy-funded project (VG16062) which helped growers develop practical approaches for pest control, building on previous research that shows pest populations can be influenced by field and landscape vegetation on farms.

<https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg16062/>

**Landscape diversity and field margin management** – a vegetable levy-funded project (VG14047) investigating the role of field margins and landscapes surrounding crop fields in providing resources to beneficial organisms and reducing arthropod pest pressure in vegetable and other crops.

<https://ausveg.com.au/infoveg/infoveg-search/landscape-diversity-and-field-margin-management/>

**NatureKit** – a tool to map Victoria’s biodiversity that can allow you to determine what flora (and fauna) are native to your property and local area.

<https://www.environment.vic.gov.au/biodiversity/naturekit>

**Port Phillip & Westernport CMA** – have undertaken substantial work in the trials and establishment of native insectaries within the greater Melbourne area.

<https://www.ppwcm.vic.gov.au/priorities-projects/past-projects/native-insectarium-trial/>

<https://www.ppwcm.vic.gov.au/priorities-projects/sustainable-agriculture/farm-biodiversity/>

**Table 2: Native plants suitable for insectaries in Werribee (Port Phillip & Westernport CMA, 2021).**

Strata	Species	Common name	Insectary benefit
Upper storey	<i>Eucalyptus</i> sp.	Manna, peppermint, messmate, swamp gum	Food source for beneficials
Middle storey trees	<i>Acacia dealbata</i>	Silver wattle	
	<i>Melaleuca</i> sp.	Scented or swamp paperbark	Food source for beneficials (in wet areas)
Middle storey shrubs	<i>Bursaria spinosa</i>	Sweet bursaria	Highly beneficial nectar producing plant
	<i>Leptospermum continentale</i>	Prickly tea-tree	Highly beneficial nectar producing plant
	<i>Leptospermum lanigerum</i>	Woolly tea-tree	Food source for beneficials
	<i>Acacia suevoelens</i>	Sweet wattle	Nectar producing
Lower storey shrubs	<i>Epacris gunnii</i>	Heath	Food source for small beneficials
	<i>Helichrysum scorpiodes</i>	Everlastings	Food source for beneficials
	<i>Brachyscome multifida</i>	Cut leaf daisy	Food source for beneficials
	<i>Brachyscome balsatica</i>	Basalt daisy for Werribee South	
	<i>Correa reflexa</i>	Common correa	Food source for beneficials
	<i>Correa alba</i>	White correa	
	<i>Correa glabra</i>	Rock correa	
	<i>Astraloma humifusum</i>	Cranberry heath	
	<i>Stylidium armeria</i>	Common trigger plant	Food source for small beneficials
	<i>Grevillea rosmannifolia</i>	Rosemary grevillea	Food source for beneficials
	<i>Grevillea alpina</i>	Alpine grevillea	Food source for beneficials
	<i>Thryptomene calycina</i>	Victorian laceflower	Food source for beneficials
	<i>Westringia fruticosa</i>	Coastal rosemary	Food source for beneficials
Groundcovers	<i>Dichondra repens</i>	Kidney weed	Food source for beneficials and groundcover habitat
	<i>Kenedia prostrata</i>	Running postman	Food source for beneficials and groundcover habitat
	<i>Acacia brownii</i>	Heath wattle	Food source for beneficials and groundcover habitat, prostrate
	<i>Carpobrotus rossii</i>	Pigface	
Grasses	<i>Austrodanthonia caespitosa</i>	Common wallaby grass	Shelter, breeding habitat for brown lacewing
	<i>Austrodanthonia setacea</i>	Bristly wallaby grass	Habitat
	<i>Microlaena stipoides</i>	Weeping grass	Habitat
	<i>Themeda triandra</i>	Kangaroo grass	Habitat
	<i>Austrostipa</i>	Speargrass	Habitat
	<i>Dianella</i> sp.	Flax lily	
Semi-aquatic/ aquatic	<i>Amphibromus archeri</i>	Pointed swamp wallaby grass	Riparian insect habitat
	<i>Melaleuca ericifolia</i>	Swamp paperbark	Nectar flowers
	<i>Juncus</i> sp.	Rushes, sedges	Riparian insect habitat
	<i>Ranunculus amphitrichus</i>	River buttercup	Food source for beneficials