

This **case study resource** was  
developed by TIA for education &  
extension purposes across Tasmanian  
schools & industry

# Activity Resource: Supporting Insect Diversity for Pest Management

Exploring Sustainable  
Approaches in Horticulture

[utas.edu.au/tia](https://utas.edu.au/tia)



## TIA's Involvement

The Tasmanian Institute of Agriculture (TIA) at the University of Tasmania leads research across diverse agricultural sectors, including horticulture.

### What is involved?

This research includes focuses on:



Surveying crops to find **new biological control agents** (e.g., insects)



**Trap cropping**, where a highly attractive crop to the target pest is planted alongside the horticulture crop. The pest is then controlled in the trap crop without impacting the ecosystem in the horticulture crop.

### Resource Activities

- **Observe** Habitats
- **Design & Plant** an Insectary
- **Monitoring Check List**
- **Communication** projects

*Each activity is adaptable for school & industry engagement.*

### Equipment Ideas

**Observations of insects** in habitats can include using various equipment, such as:

- Sweep nets (large nets with handle aerial & stationary insects);
- Sticky traps (hung in & around crops)
- Beating trays/ white sheets to collect under crops, trees & shrubs.
- Hand-held lenses to magnify insects

**1. Observe** existing habitats – this could be on an existing crop, school farm site, your backyard or community garden.

- Take an initial observation of types (diversity), & number of insects (abundance) that you find in the habitat, including where you find them on different plant species.
- Are there any locations or plants where insects are found more than elsewhere?
- **Apply SNAP:** Consider what are present - **S**helter, **N**ectar, **A**lternative Prey & **P**ollen.
- Design your own **Monitoring Check List** (see next page)

### 2. Design & Plant Your Own Insectary

- **Design** – Consider what you could do to enhance the **SNAP** elements of your habitat. Hint: providing dead wood or bark can support insect larvae food & shelter.
- **Plant & Create** your own 'conservation biocontrol' habitat. What sorts of plants might you include & why? Examples: annuals, perennials, grasses, shrubs.
- **Suggestion:** An easy way to establish this could be simply planting a crop such as **buckwheat** that can attract & support beneficial predatory insects, including hoverflies (see next page).

**More case study activities & resources continue over the page...**

### TIA Research Team

TIA Entomologist **Dr Jon Finch** is a lead researcher in this project  
([Jonathan.Finch@utas.edu.au](mailto:Jonathan.Finch@utas.edu.au))

For more information please contact the authors: \*B. Deans: [Bianca.Deans@utas.edu.au](mailto:Bianca.Deans@utas.edu.au) (Education & Work Integrated Learning Officer, TIA); \*M. Buntain: [Michele.Buntain@utas.edu.au](mailto:Michele.Buntain@utas.edu.au) (Industry Development & Extension, TIA); \*J. Finch: [jonathan.finch@utas.edu.au](mailto:jonathan.finch@utas.edu.au) (Lecturer in Entomology)

DISCLAIMER: While the Tasmanian Institute of Agriculture (TIA) takes reasonable steps to ensure that the information on its resources are correct, it provides no warranty or guarantee that information is accurate, complete or up-to-date. TIA will not be liable for any loss, damage, cost or expense incurred or arising by reason of any person using or relying on the information contained in this publication. No person should act on the basis of the contents of this publication without first obtaining specific, independent, professional advice.

### 3. Develop a Monitoring Checklist

Design your own **monitoring checklist** to record observations of insects in your environment.

Consider what details may be important to record, such as:

- **Location** – place, layout of crop
- **Time** of day, month & season, start time & finish time of the survey (duration)
- **Who** conducted the survey
- **Space:** Approximate dimensions of the area surveyed (space).
- **Habitat height/s** surveyed (soil, leaf litter/mulch, leaves/stems/branches, tree trunks, open air...)
- **Equipment** used in monitoring
- **Insects present:** Types of insects, & numbers of insects (count).
- **SNAP factors** (your choice of which factors to include).

### 4. Collect Your Observations & Compare

**What** do you notice? Could you monitor this over time? How often?

**Think:** Might these observations change across seasons? How & why?

**Compare** the insect diversity & abundance of a crop/habitat that has an insectary/biodiversity planting strip nearby to that of one without.



**Above:** Raspberries & blackberries grown in Tasmania contribute to the year-round supply of berries to Australian consumers & are high-value, high-quality export crops.

### 5. Communication Projects

Once developed, share what you have done & learnt amongst your peers or community groups. **Explain** your monitoring sheet, insectary design method used (if planted), equipment used or suggested for that environment & why.

**Inquiry Project** - Use the information that you have collected from your observations & summarise what you've noticed across habitats.

**Question prompts:**

- What did you do, how did you do it & why?
- What are some key insights or learnings?
- Do you have any recommendations?
- Share this in a **clear, engaging way** – including with your class, school, broader community or industry groups.

### Species Spotlight: The Common Hoverfly

**Attracting helpful insects with plants:** Agricultural scientists have planted buckwheat along with a range of flowering plants in flowering strips alongside raspberry crops to encourage beneficial insects ('the good bugs') to stay in & around the crop.

**How do hoverflies help crops?**

**Pest control:** The larval stage of the hover fly eats aphids & other soft bodied pests such as the mealy bug. These pests can reduce the plant health & transfer diseases. A single hoverfly larva can eat dozens of aphids per day!

**Pollination:** Hoverflies, along with other fly species, are recognised as effective pollinators of crops. This can result in greater fruit yields & a higher quality fruit product.



**Above:** A hoverfly (*Melangyna viridiceps* – also known as the common hoverfly) hovers above a buckwheat flower. Hoverflies are helping manage pests in raspberry crops. The short-season crop buckwheat was planted along rows at as a supporting plant to provide pollen & nectar to the beneficial insects.

#### Further TIA Resources:

- **Article:** [Raspberry & Blackberry Integrated Pest Management \(IPM\)](#)
- **Video:** [Raspberry Integrated Pest Management \(IPM\)](#)
- **TIA STEM Learning Resources:** freely available via the UTAS Schools Portal: [Sciences of Agriculture: Engaging students and teachers in STEM](#)