Impact of ants in substrate and protected cropping production systems

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As more of the berry industry adopts substrate and protected production systems, issues like ant infestations are also becoming increasingly prominent.

Ants are one of the most familiar and commonly occurring group of insects on berry farms. They are often not associated with direct damage to the crop and as such mostly go unnoticed. However, they can be responsible for indirect damage to both the fruit and overall plant health. Ants can disrupt root development in substrate bags, protect other pests like aphids and scale insects in exchange for honeydew, and compromise the hygiene and structural integrity of growing systems.

Ant Identification

Ants are primarily identified by a constricted "waist" between the thorax and abdomen (Figure 1). It comprises one or two knobbed segments (bumps) rather than a single segment. The antennae have a distinctive elbow, and the mandibles (jaw) are prominent. The most common ants found on berry farms are black house ants, green ants, and costal brown ants. Other invasive species of ants to look out for would be Red Imported Fire Ants (See PAGE 39 Autumn 2025 edition for more information on this dangerous pest) and Argentine ants.

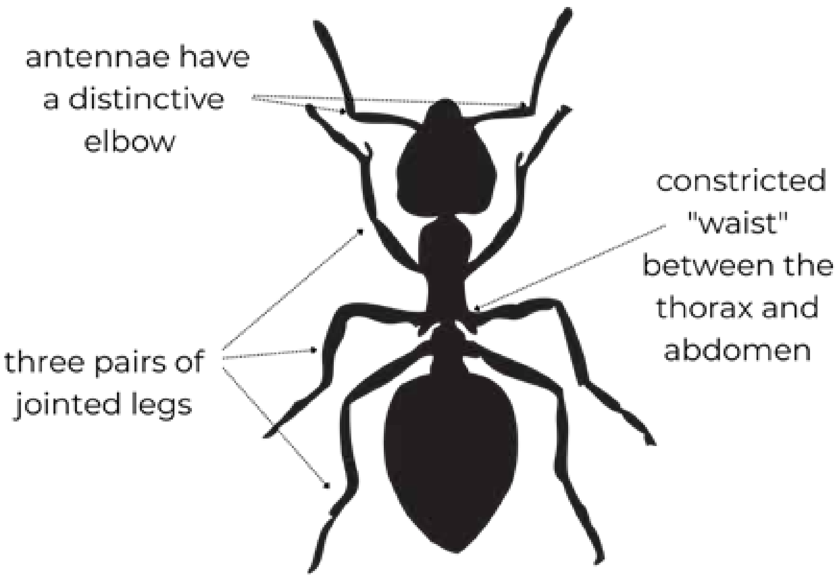
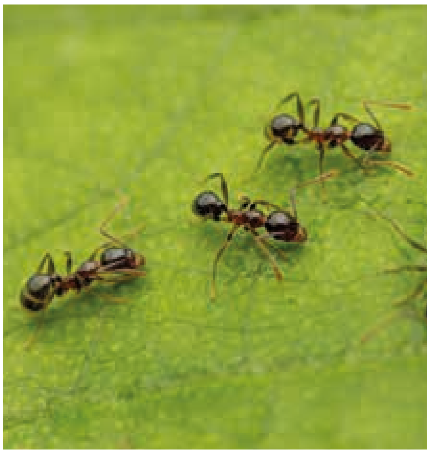


Figure 1. Key identifying features of ants


(L-R) Black House Ants, Coastal Brown Ants and Green Ants
Photo credits: CC-BY-NC 4.0 (Int) Mark Ayers, Bridgette Gower and Xavier Piron

Argentine ants *(Linepithema humile)* are an invasive ant species originally from South America. They are small (about 2.5–3 mm long), light to dark brown in colour, and form massive super-colonies with multiple queens. Unlike many native ants, they don't fight between colonies, allowing them to spread rapidly and outcompete local species. Argentine ants have been detected in various parts of southern Australia, particularly:

- Metropolitan Adelaide (South Australia) – widespread in urban areas
- Parts of Victoria – especially Melbourne suburbs
- Western Australia – including Perth and some regional locations
- New South Wales – limited but with known incursions

They are not currently established in Queensland, but are considered a high biosecurity threat, especially to horticulture and biodiversity.

Argentine ants. Photo credit: CC-BY-NC 4.0 (Int) Cameron Rodda

Damage

Many ant species 'farm' sap sucking pests such as aphids, mealybugs, and scale insects in a mutualistic relationship. The ants move these pests to new feeding sites, protect them from predatory arthropods, and contribute to the health of the colony by removing dead or infected individuals. In return, the sap-sucking pests feed on plant sap and excrete a sugary substance called 'honeydew', which is a rich food source for the ants. As such, ants are often responsible for aggravating the damage associated with sap-sucking pests.

The establishment of ant colonies within substrate media represents another pathway through which ants can negatively impact plant health on berry farms.

Blueberries and blackberries that are grown in larger volumes for longevity are prone to incurring this kind of damage. When ants remove fine particles from the substrate, they create large air gaps in the pot. These gaps cause water to bypass parts of the root zone - a process known as water channelling - leading to false drainage readings and uneven moisture distribution. This not only limits root growth by reducing the area available for roots to anchor and absorb nutrients but also undermines the effectiveness and lifespan of the growing system. Above-ground symptoms can resemble those caused by root stress and may include leaf discolouration, reduced vigour, and stunted growth.

Ant-aphid mutual relationship. Photo credit: Photo Fun, Shutterstock

Ant Damage. Photo credit: Simon Boettiger

Management options

Currently there are no synthetic insecticides that are registered for use on ants in all berry categories. There are some steps that you can take to help reduce the impact:

- Monitor and identify infestations early particularly with regard to invasive species (find out more about these at invasives.org.au)
- Regularly inspect pots, benches, and surrounding areas for signs of ant activity (e.g. trails, nests, displaced growing media)
- Identify the ant species as some are particularly invasive and require specific strategies as well as notification to authorities
- Communicate with neighbours and industry bodies to coordinate control efforts for invasive species like Argentine, Yellow crazy ants or Fire ants
- Keep staff informed on identifying early signs of these dangerous species and reporting them promptly

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