

Cotton aphid (exotic strain) (*Aphis gossypii*)

EXOTIC PEST DETECTION & SAMPLING GUIDE



1549263

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Background

Cotton aphid is a serious pest of cotton that can also infest over 700 plant species, including citrus, melon, and cucurbit species. They are globally distributed and are found throughout Australia. However, there are exotic strains of cotton aphid not yet found in Australia that may carry exotic pathogens or demonstrate different insecticide resistance profiles. Cotton aphid is known to be a vector for over 50 different plant diseases including cotton bunchy top disease and mosaic viruses.

How would I identify an exotic strain of cotton aphid?

Identification by morphology

Adult Cotton aphid are small, at 1-2mm in size, globular shaped and range from light yellow, pale green, dark brown to black (body colour is influenced by temperature and food source). They have red eyes, relatively short antennae, and two black 'exhaust pipes' (siphunculi) on the posterior end. Like other aphids, there are winged and wingless versions, with the latter type being most useful for achieving correct identification.

Identification by damage

Cotton aphids frequently feed on the underside of leaves or on growing tips. They are sap feeders, which results in leaf curling or distortion. Cotton aphid also secrete honeydew, which promotes sooty mould growth leading to inhibition of photosynthesis. Exotic strains of Cotton aphid may also vector exotic diseases, such as cotton blue disease, a viral disease that manifests as small rolled down leaves and severely stunted growth. There is also a risk that exotic strains of Cotton aphid will have different resistance profiles to aphids already found in Australian cropping areas.

How do I scout for exotic strains of cotton aphid?

Aphids are wind dispersed, with winged adults capable

of short-range flight. Pan traps (shallow trays filled with water) can be placed near the edge of crops to catch winged aphid in order to monitor for incoming flights. However, wingless adults are typically used for species identification and therefore finding winged aphid in pan traps should initiate monitoring and specimen collection in the crop. Scouting for wingless Cotton aphid involves individual plant assessment, generally along crop edges, which are usually infested first.

Once Cotton aphid has been identified in the crop, keep an eye out for unusual cases of chemical tolerance or plant disease symptoms. Detection of exotic strains of Cotton aphid is likely to be a result of repeated chemical control failures of aphid populations, or of unusual disease symptoms, coupled with the presence of aphid populations.

Could it be confused with an endemic species?

Exotic strains could be confused with locally occurring cotton aphid species. Insecticide resistance testing, molecular testing or pathogen testing would be needed to enable confirmation of an exotic strain. Exotic variants are found in the United States, South America, Southeast Asia, and Africa. Cotton aphid may be confused in the field with other aphid species, including green peach aphid and cowpea aphid.

Figure 1. Cotton aphid (*Aphis gossypii*) damage



What should I do if I suspect an exotic strain of cotton aphid?

Cotton aphid (exotic strains) is a priority plant pest, exotic to Australia. If you notice a cotton aphid infestation, coupled with unusual disease symptoms or a chemical control failure, call the **Exotic Plant Pest hotline on 1800 084 881**. The hotline will divert you to the appropriate state biosecurity agency, which will investigate the suspect detection further. To support an investigation you should take note of:

- The detection location (take a GPS coordinate using your phone);
- The host plant on which the suspect detection has been made;
- Damage symptoms (e.g. stunted growth); and
- A photo of all life stages observed (taking close-up photos of the same specimen from multiple angles is most useful for identification).

Taking a sample

Taking a sample will also assist in a biosecurity investigation. Collect aphids on the plant part on which they are found and place in a ziplock bag – double bagging of specimens is ideal (adding some paper towel to the bag will reduce condensation). Label the bag with the date and collection location and keep in the fridge in case a sample is needed by the biosecurity agency.

Figure 2. Reporting decision making for cotton aphids (*Aphis gossypii*)

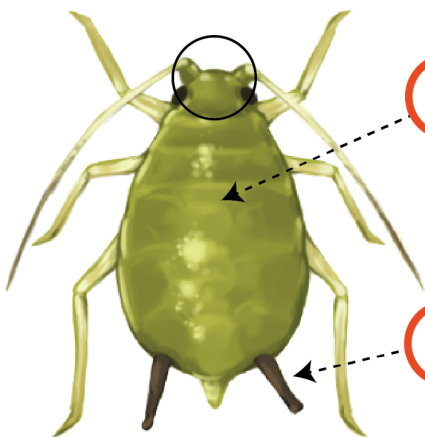
You have spotted aphids in your cotton crop. Should you report it?

If you answer yes to ALL OF THE following questions, it could be a new **exotic strain of pesticide resistant cotton aphid**. Report it!



1 Is the head smooth with no visible tubercles? (you will need a hand lens to see these)

Yes



2 Does it have a dull, waxy, bulbous body? (but it can be any shade of light to very dark green)

Yes

3 Does it have dark coloured exhaust pipes?

Yes

4 Have you experienced **unusual amounts of damage** or a **spray failure**?

Yes

If you answer no, it is likely the already established strain of cotton aphid. No need to report.

But if you answer no to any of the first three questions, it is likely a different species of already established aphid:



Green peach aphid have visible tubercles (bumps near the antenna base).



Cowpea aphids have a glossy (instead of dull and waxy) body.



Green peach aphid have green coloured exhaust pipes.

Figure design and all illustrated components: Elia Pirtle, eliapirtle.com

More information

[CABI, Cotton aphid \(*Aphis gossypii*\)](#)

