A guide: how to use the CottonInfo NymphCheck App

Version 1.2 – January 2026

The CottonInfo NymphCheck App is a digital tool to assist with sampling for silverleaf whitefly nymphs by providing image-derived insect counts using a phone camera. As at late January 2026, NymphCheck is available on app stores as a Beta release.

The software is based on research and development undertaken with support from CRDC by Dr Derek Long and Dr Alison McCarthy from the University of Southern Queensland (UniSQ) Centre for Agricultural Engineering in partnership with Queensland DPI and CottonInfo IPM Technical Lead Dr Paul Grundy.

This guide is going to cover:

- The lens that you need to use the app
- How to hold the leaf to take photos
- What the result numbers mean

Lens attachment

You need an Apexel 200x Microscope lens. It has a built-in light which can be charge via an included USB-C cable, and will fit over all iPhone and most Android cameras. Your phone case may need to be removed in order to fit the lens. For some phones (such as the iPhone and iPhone Pro models) the lens is best fitted sideways (as shown above) to get the attachment over the correct lens while covering all other lenses on the phone.

You must use the specified lens with the app. The classifier was developed specifically for high quality images that come from this lens, and so using any other lens will give lower quality images and will not be compatible.

For the initial launch of the app in 2026, the CottonInfo team are able to provide a limited number of lenses to the first wave of users. Please reach out to the CottonInfo team to check if there are still lenses available.

Note when buying: There are variants of this lens with and without a polarising filter (CPL). We strongly recommend getting one **with** the CPL – double check the purchase link to make sure it has it (all the links above should be OK).

How to take photos

Taking a photo with the lens on is straightforward. After turning on the lens light we can press the leaf up against the lens and that puts the surface of the leaf in good focus. Try to put the nymph/s towards the centre of the photo, and in focus. Please do not zoom in further with your camera app, only use the zoom given by the lens. The app expects photos looking like the example below.

Interpreting results

There are two numbers that are returned when an image is processed by the app:

- Viable whitefly (appearing healthy)
- Non-viable whitefly (showing parasitism or dead)

If you get a number of results back less than the number of nymphs in the image, that means that the classifier wasn't confident enough in its assessment to report the result. Blurry areas of the photo are ignored (below of the vein of the example image above, for example). You can slightly reposition such that the whole image is in focus and try again, or alternatively move on to another nymph.

There is also a summary tab in the session view that shows the overall ratio of viable whitefly.

FAQ

Does the app work outside of mobile reception?

Yes. The processing occurs on your phone, so there is no uploading of your photos anywhere. Some limited anonymous usage data is periodically collected, but the app works entirely offline and does not need internet connection.

Is this app going to use up lots of my phone storage?

The app should consume a maximum of 300-500 mb of storage on your phone depending on how you use the app. The only photos that the app will keep on your phone storage are those in your currently saved 'group capture' session. There is a toggle on the main side menu to let you choose whether photos you take within the app are saved to your phone's gallery or not.

How accurate is it?

Our internal testing indicated that the classifier is 80-85% accurate. We've done our best to make this consistent across all growing regions and phone types, but we can't guarantee this accuracy in all cases because of environmental variations. Most of the images the team collected for training look similar to the example photo provided. If your leaves have a very different appearance (damaged leaf, high density of nymphs) the accuracy will likely be impacted.

What lenses are compatible with the app?

Only the Apexel 200x lens that is linked in the user guide will work with this app. Using any other lens will make the classifier produce random results.

What has happened to the nymph counting functionality from the original PestDetect app?

We are looking at a thorough redesign of both the nymph counting function and the decision support tool that it links to and will have more to say in the future. We've focused on the lens mode for this 'Lite' app release because that is what hit the mark in the original app.