

Sorting the contents of FAW pheromone traps

A guide to the preliminary sorting of the contents of fall armyworm (FAW) bucket traps in Queensland to enable trap operators to select the moths that are potentially FAW. Photographs and/or specimens can then be sent to an entomologist for more detailed examination if needed.

Unlike *helicoverpa* pheromone traps that only attract one species of moth, a considerable amount of material collected from FAW traps is bycatch. A quick sort can significantly reduce the volume of specimens that need to be examined more closely to determine FAW moth presence.

Typically, the trap contents will be a mix of insects. Most are lepidopteran (moths and butterflies), with a smaller number of flies, wasps, bees and sucking bugs. The white and yellow of the traps is probably attractive to day-flying insects such as the butterflies and non-lepidopteran species pictured in this guide, and it is likely that the FAW pheromone lure contains elements common to some other moth species.

Fortunately, there is some consistency in the range of moths being captured. Included are the key species seen in traps from Central Queensland and the Darling Downs.

Pheromone traps mimic the pheromone released by female moths to attract males, therefore, we expect to see only male moths in the traps, and this guide focusses on identifying male moths.

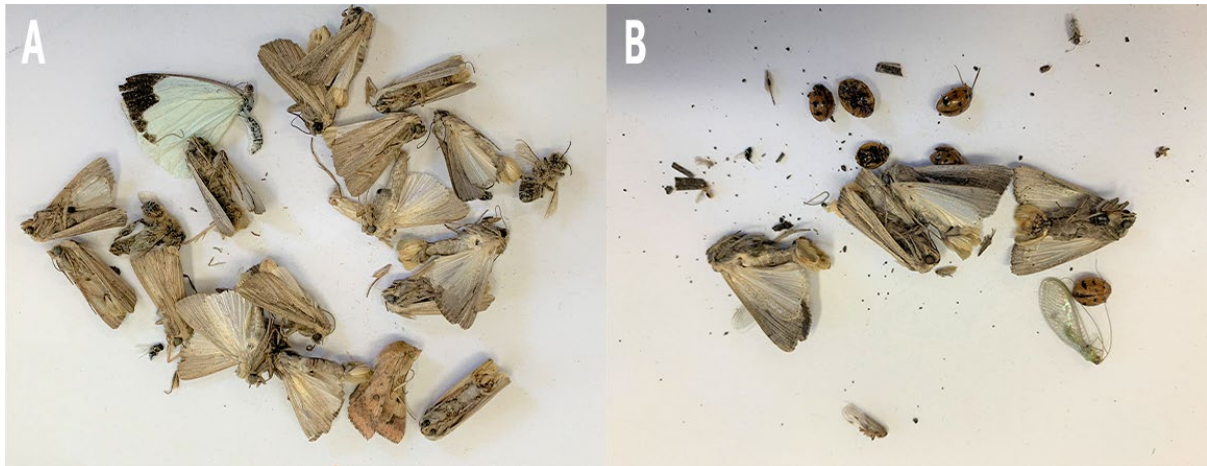


Bucket-style pheromone trap deployed for FAW monitoring.



Female (left) and male (right) fall armyworm moths are quite different in appearance.

STEP 1. Empty the trap contents onto a tray or light coloured surface.



Ensure good lighting to enable close examination of the specimens. Above are two examples of trap contents.

STEP 2. Separate the greyish-brown moths from other species.



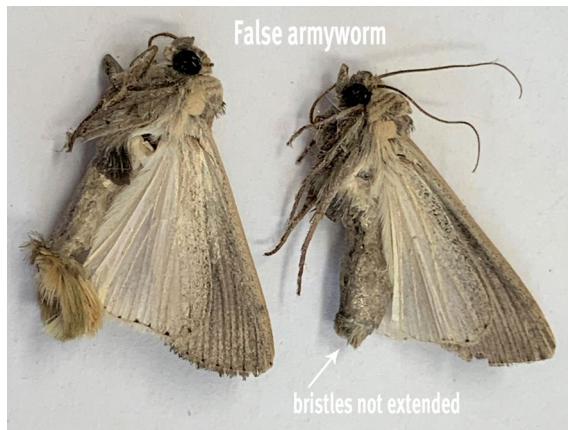
- A. Wasps, bees, flies, bugs and beetles have been sorted to the left and moths that are similar in size and colour to FAW to the right. In the middle is a butterfly and a heliothis moth.
- B. Moths are sorted to the right, all other insects (ladybugs, lacewings, bugs) to the left.

STEP 3. Examine these moths and remove the obvious false armyworm specimens.

False armyworm (*Leucania loreyi*) has been the dominant moth species in the bycatch (and may outnumber FAW). These moths may die with wings folded up, which makes it difficult to see the wing pattern, and often wings are damaged or scales are missing, so base your initial sorting on the presence of a tuft of bristles at the rear end of the abdomen, and remove moths with obvious tufts of brown bristles.



Some FAA do not have bristles extended. These will end up in the 'suspect' collection for further examination. Moths in the photo have been separated into FAA (right) and others (left). The 'suspect' specimens will be examined more closely to determine if any of them are FAW.



STEP 4. Closer examination of the 'suspects'.



If the wings are in good condition the characteristic pattern of male FAW may be sufficient to determine if they are FAW. However, their wings may be so badly damaged that they cannot be used for identification (such as the moth pictured on the left).

In specimens where the bristles are not obvious, a gentle squeeze of the abdomen may help them protrude. False armyworm bristles are brown, while FAW bristles are white.



If neither of these features is conclusive, specimens will need to be examined under a microscope, with the identification based on dissection of the genitalia.

STEP 5. Confirming identification of 'suspect' moths.

Photographs or specimens can be sent for examination to your nearest DAF entomologist with involvement in the FAW trapping program. To send moths for identification, put them in a plastic bag (e.g. zip lock) in a padded envelope, or rigid container with paper towel/tissue so that they are not squashed or broken in transit.

Entomological contacts in Queensland:

DAF Entomologist	Phone and email	Mail
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Examples of lepidoptera that may be found in trap catches:



Fall armyworm (*Spodoptera frugiperda*)



False armyworm (*Leucania loreyi*)



Helicoverpa sp.



Soybean looper (*Thysanoplusia orichalcea*)



Tobacco looper (*Chrysodeixis argentifera*)



Beet webworm (*Spoladea recurvalis*)



Caper white butterfly (*Belenois java*)



Heliotrope moth (*Utetheisa pulchelloides*)

Photos in this guide by Hugh Brier, Melina Miles and Richard Sequeira.