KNOW YOUR PEST

Identifying FCM adults in traps


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False codling moth (FCM) is a primary pest that must be well managed in citrus orchards and other susceptible crops, to ensure pest-free fruit export.

Accurate identification of FCM is crucial for effective management of the pest. Delta traps, baited with pheromones are used to monitor the FCM adult male population, providing growers and farm managers with a means to identify the presence and peaks of FCM in orchards. The information gained from these traps will aid in decision-making for timing of control options (particularly virus sprays and egg parasitoid releases), determining which orchards should be prioritised for control measures, measuring sterile to wild moth ratios in a sterile insect technique (SIT) programme, and comparing population sizes between seasons (Moore 2022). Hence, it is imperative that FCM adults in traps be correctly identified. However, moths other than FCM are often attracted to or inadvertently caught in FCM traps, requiring careful identification of trapped moths, rather than simply counting all moths present. Here we provide tips on how to accurately identify FCM in delta traps in the field.

FCM adults are small to medium, 5–7 mm long and have a wingspan of 16–20 mm. Adult moths are well camouflaged, with a mottled grey-brown forewing and a "plume" of greyish/white scales that may appear to shimmer (**Figure 1**). The top of the forewings has a cluster of upturned scales forming an apex just behind the head of FCM. The hindwing is greyish brown with a subtle fringe along the edge. Another feature to identify FCM is when the adults are resting, the wings are held in a "roof-like" position. These features contribute to the nocturnal behaviour of FCM, allowing them to stay hidden during the day (Moore 2002; Gilligan et al., 2011; EPPO 2019).

Four key features to look out for when trying to identify FCM in traps and to differentiate them from other moth species that might be present

- a "plume" of greyish white scales or a white dot on the forewing (**Figure 1**)
- a patch of scales in the middle of the forewing that are raised and light brown/rust-coloured (**Figure 2**)
- a darker patch of scales at the bottom of the forewing, forming what looks like a question mark (**Figure 3**)
- a broad semi-circular band of darker scales found in the middle of the forewing, not as prominent as the other three features (**Figure 4**) (Moore 2022; EPPO 2019).

In some instances, FCM may lose their scales and these four distinguishing features may not be as clear, as shown in **Figure 5**.

Effective management of FCM in citrus orchards ensures pest-free fruit exports.


PHOTO | LUKE COUSINS
Figure 1


PHOTO | LUKE COUSINS
Figure 2


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Figure 3

Figure 1: Side view of false codling moth showing the "plume" of white/grey scales, appearing as a white spot Figure 2: Light brown/rust-coloured scales that are raised in the middle of the forewing Figure 3: The "question mark" marking of darker coloured scales on the forewing of FCM Figure 4: The less prominent marking of a broad semi-circular band of darker scales found in the middle of the forewing Figure 5: FCM with no scales Figure 6: The semi-circular pocket of scales on the hind wings of FCM males

In this case, a few steps can be followed to try and identify the moth

- Screen the variety of moths in the sticky trap and determine if they match the general size of FCM (8–12 mm).
- Observe the outline of FCM's appearance and try and match it to those moths that fit the size of FCM.
- If the sample is a male FCM, as should always be the case in pheromone traps, it should display a distinguishing feature that is not found on other species, a semi-circular pocket of scales on the hind wings (**Figure 6**). Another feature of male FCM is that they have tufts of black scales on their hind legs, which are not seen on other species (Gilligan & Epstein 2014).

How is FCM accurately identified in delta traps in the field?

It is a good idea to furnish trap monitors with the photographs and guidelines provided in this article, to assist with more accurate identification of FCM. In instances where scouts or growers are not certain of the identification of these apparently dull adults, please contact your local pest expert or send any queries through to Tammy Marsberg at CRI, tammy@cri.co.za.

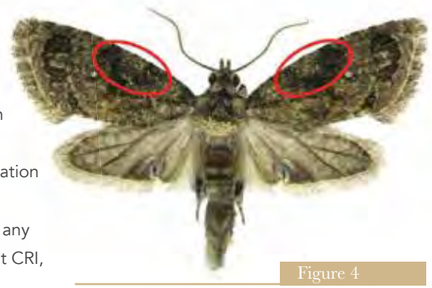
PHOTO | TODD GILLIGAN AND MARC EPSTEIN
Figure 4


PHOTO | TAMRYN MARSBERG
Figure 5

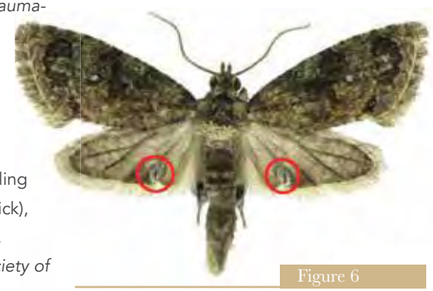
PHOTO | TODD GILLIGAN AND MARC EPSTEIN
Figure 6

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