

## OC015. Fruit fly identification: it's apt to use an app

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Morphological identification of insects traditionally relies on dichotomous keys which are often problematic to be used by the non-specialist. Immature stages such as larvae are even more difficult due to the limited characteristics present. The lack of easy and readily available tools hampers a swift and timely identification, of crucial importance in detection and surveillance programmes. Modern technology offer the possibility of alternative identification tools such as digital multi-entry keys with illustrated character states. Such tools were developed for adults and larvae of tephritid (Diptera, Tephritidae) fruit flies of economic significance, mainly of the genera *Ceratitis*, *Bactrocera Dacus*, *Trirhithrum*, and *Zeugodacus*. One application includes 23 adult species of the genera that are considered of importance for the EU. A second key covers third instar larvae of thirteen species and species-groups, while a third comprises 29 adult fruit fly pest species occurring in different regions in Africa, including the islands in the western Indian Ocean. All were developed along similar lines, based on a character state matrix scored for each taxon. Adult keys use characters from the main morphological structures (head, thorax, wing, legs, abdomen, genitalia) while the larval key mainly uses characters of the cephalopharyngeal structure in addition to the number of tubules in the front spiracles, and their position in relation to the cephalic skeleton. The keys were developed and afterwards converted into a mobile application by LUCID, for both Android and Apple devices. They are freely accessible and downloadable.

**Keywords:** Tephritidae, surveillance, identification, invasive species, pest species