



## Submissions for Diagnostic Protocols

### I. General information

<b>Submission number</b>	2023-029
<b>Title of Proposal</b>	Diagnostic protocol for False Codling Moth, <i>Thaumototibia leucotreta</i>
<b>Submitted by</b> (Country or Organization)	IPPC Contracting Party
<b>IPPC Official Contact Point or RPPO</b>	Kenya
<b>Supported by</b>	Prof. Theophilus Mutui

### 2. Contact information

<b>Name</b>	Prof. Theophilus Mutui
<b>Position and organization</b>	Managing Director KEPHIS
<b>Mailing address</b>	P.O. BOX 49592-00100 NAIROBI, KENYA
<b>Phone</b>	+254-0709-891000
<b>Email</b>	tmutui@kephis.org

### 3. Summary of proposal

<b>Summary of justification for the proposal</b>	<p>False codling moth is native to sub-Saharan Africa (Vanette et al., 2003) but is widely distributed across the African continent. It has been reported in around 40 countries (CABI, 2022). False codling moth is not established outside Africa but is detected in exported consignments during quarantine inspections in Europe (Gilligan et al., 2011). False codling moth is highly polyphagous, it has been recorded in more than 50 species of plants in over 30 families. Some of the false codling moth hosts are citrus, peach, macadamia, capsicum, cotton, roses, avocado, mango, grapefruit, guava and eggplant (Brown et al, 2008, CPC CABI, 2022). FCM has continued to be a challenge in exports of crops due to the number of interceptions recorded (Europhyt 2023). Some countries have zero tolerance to FCM in consignments making it a quarantine pest (EPPO 2013, EFSA 2019,2020). There is therefore need for harmonized diagnostic protocol that would support proper identification and diagnosis of FCM at points of entry/exit and early pest detection to aid prevention of introduction of the pest into new areas.</p>
<b>Proposed priority</b>	I (high)

<b>Comments</b>	There is need for harmonization of the diagnostic techniques because of the consequences of detection of the pest in trade which may include possible disruption of trade.
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#### 4. Literature review

<b>Literature review</b>	<p>False Codling Moth (<i>Thaumatotibia leucotreta</i> Meyrick) is a pest of economic importance present in more than 70 host plants including ornamentals, fruits and vegetables (USDA-APHIS, 2022, Ad). FCM is endemic to sub-Saharan Africa and has shown to be an effective invader (CABI, 2022). FCM reduces not only the yield and quality of the crop but also as a quarantine insect pest, restricts the trade of susceptible agricultural produce on the international market. (Adom et al., 2021). In South Africa, this highly polyphagous species is a key pest of citrus with fruit losses up to 90% (EPPO 2013), while the economic impact to other agricultural and horticultural industries should not be underestimated (Golding 1946, Vanette et al. 2003, Gilligan et al. 2011, Adom et al. 2021)</p> <p><b>Taxonomic Classification</b>  Kingdom –Animalia  Phylum –Arthropoda  Class –Insecta  Order –Lepidoptera  Family –Tortricidae/leaf roller  Genus - <i>Thaumatotibia</i>  Species – <i>T. leucotreta</i> (Meyrick, 1913)</p> <p><i>Thaumatotibia leucotreta</i> is detected as larvae in and in fruits (guava, chillies, citrus and avocados). Adults are detected in light traps, baited traps and sticky traps.</p> <p><b>Description of life stages</b></p> <p><b>Eggs</b>  Eggs are translucent, about 1mm in diameter, laid singly or sometimes 2 or 3 together laid at irregular intervals. Eggs resemble an inverted saucer-shaped dome and are about 1 mm in diameter. The eggs are initially translucent but darken internally through red stage to black stage shortly before hatching. The black part is the head capsule of the developing larva. (Prinsloo, G.L. &amp; Uys, V.M (Eds) 2015).</p> <p><b>Larva</b>  Hatching larvae burrow into the rind of the host plant. Larval feeding activity causes direct damage on fruits, resulting in early ripening and fruit drop (EPPO 2013) as well as indirect bacterial and/or fungal infections (Gilligan et al. 2011). Larvae are yellowish-white with dark spots. Mature larva is about 15 mm long and 2.5mm wide.</p> <p><b>Pupa</b>  The pupa is yellow brown to reddish brown, about 8-10mm long and 2-2.5mm wide. Second abdominal segment is rough, strongly punctured dorsally, with two rows of spines. Spines of the eight and the ninth abdominal segments are prominently developed. The tenth segment has spikes and</p>
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	<p>two pairs of hooked setae (Prinsloo, G.L. &amp; Uys, V.M (Eds) 2015)</p> <p>Adults</p> <p>Adults of <i>T. leucotreta</i> are sexually dimorphic, and the two sexes differ in overall size and wing shape. The adults are brown- coloured with dark reddish concave band in the middle of the forewing (Daiber 1980)</p>
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## 5. Criteria for prioritization of Diagnostic Protocols

Criteria	Information provided by Submitter
<b>1. Need for international harmonization of the diagnostic techniques for the pest (e.g. due to difficulties in diagnosis or disputes on methodology)</b>	The False codling moth is a very small pest making detection and identification pretty difficult. Currently, there are no documented protocols for diagnosis of the pest despite its risk nature.
<b>2. The relevance of the diagnosis to the protection of plants including measures to limit the impact of the pest.</b>	<ul style="list-style-type: none"> <li>-The protocol is useful in circumstances such as: - routine diagnosis of <i>Thaumatotibia leucotreta</i>.</li> <li>- routine diagnosis <i>Thaumatotibia leucotreta</i> in imported/exported consignments</li> <li>- general surveillance for <i>Thaumatotibia leucotreta</i> status</li> <li>- surveillance as part of an official control or eradication programme-</li> <li>- testing of material for compliance with certification schemes</li> <li>- <i>Thaumatotibia leucotreta</i> diagnostic associated with phytosanitary certification</li> <li>- detection of <i>Thaumatotibia leucotreta</i> in an area where it is not known to occur</li> <li>- detection of <i>Thaumatotibia leucotreta</i> in a consignment originating in a country where the pest is declared to be absent.</li> </ul>
<b>3. Importance of the plants protected on the global level (e.g. relevant to many countries or of major importance to a few countries).</b>	The pest has a wide host range and has ability to establish in areas where it is known not to occur. It can spread through international trade of its host crops.
<b>4. Volume / importance of trade of the commodity that is subjected to the diagnostic procedures (e.g. relevant to many countries or of major importance to a few countries).</b>	<i>Thaumatotibia leucotreta</i> is a pest of Citrus, avocado and Capsicum among other crops. These products have great significance to food security and trade in many countries
<b>5. Other criteria for topics as determined by CPM that are relevant to determining priorities</b>	Kenya has started to develop a protocol for identification of the pest. The protocol has the potential to contribute to the early detection and prevention of spread of the pest and hence have great economic impact.

<b>6. The balance between pests of importance in different climatic zones (temperate, tropics etc) and commodity classes.</b>	The pest is of importance in different climatic zones and its polyphagous. Many countries instituted emergency measures for the prevention of introduction of the pest.
<b>7. Number of labs undertaking the diagnosis.</b>	Information on the number of labs undertaking diagnosis of <i>Thaumatotibia leucotreta</i> is immediately not available however Kenya and other African countries have labs that undertake diagnosis.
<b>8. Feasibility of production of a protocol, including availability of knowledge and expertise.</b>	Information on the number of labs undertaking diagnosis of <i>Thaumatotibia leucotreta</i> is immediately not available however Kenya and other African countries have labs that undertake diagnosis.