An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

Pest Specific Contingency Plan for Outbreaks of *Thaumatotibia leucotreta* (False codling moth)

(March 2023)

Fig 1: Adult female (L) and male (R) *Thaumatotibia leucotreta*. Obtained from the Pest and Diseases Image Library, Bugwood.org

Contents

Glossary

Acronym	Term
DAFM	The Department of Agriculture, Food and the Marine
EFSA	The European Food Safety Authority
EPPO	European Plant Protection Organisation
IPPC	International Plant Protection Convention
ISPM	International Standards for Phytosanitary Measures
Pest	Any species, strain or biotype of plant, animal or pathogenic agent injurious to plants or plant products
Plants	Living plants and parts thereof, including seeds and germplasm
Plant Product	Unmanufactured material of plant origin (including grain) and those manufactured products that, by their nature or that of their processing, may create a risk for the introduction and spread of pests
UQP	Union Quarantine Pest

1. Introduction and scope

1.1 Introduction

This plan describes the management procedures activated in the case of an outbreak of *Thaumatotibia leucotreta* in Ireland.

1.2 Scope

This document is restricted to activities specific to this pest and will be used in conjunction with the DAFM's General Contingency Plan for Plant Health which gives details of the teams and organizations involved in pest response in Ireland, and their responsibilities and governance.

2. Summary of the threat

2.1 Thaumatotibia leucotreta threat

Thaumatotibia leucotreta (false codling moth) is listed as one of the EU top 20 "priority pests" given the threat it poses to a number of economically important crops in the EU such as *Citrus* and *Capsicum*. The pest is currently distributed throughout sub-Saharan Africa and is also found in Israel where it has a restricted distribution (EPPO, 2023a). It is likely the pest would only be capable of establishment outdoors in southern areas of the EU. Risk assessments by EPPO (2013) and EFSA (2019) concluded that the area of potential distribution for the EU to be Southern Portugal, Spain, Italy (Sicily and Sardinia), Malta, Southern Greece and Cyprus. For more Northern countries such as Ireland the risk of establishment is restricted to indoors production of its host crops.

Thaumatotibia leucotreta is a highly polyphagous species with more than 50 plants host families (EFSA, 2020). A list of the major hosts recorded are provided on EPPO GD (EPPO, 2023a). Hosts of relevance to the EU include *Capsicum* spp., *Citrus* spp. and *Prunus* spp. For Citrus, it could be considered a favoured host in many areas of the pests distribution, with the host species *Citrus sinensis* being most vulnerable to *T. leucotreta* damage (EFSA, 2019). Of the major hosts of relevance to Ireland, only protected (e.g. glasshouse) crops of *Capsicum* spp. are likely at risk.

In *T. leucotreta* current area of distribution, impacts from the pest varies in severity across different hosts and regions (CABI, 2023; EPPO, 2023b). Impacts have been reported from *Citrus* in southern Africa, *Capsicum* and *Rosa* in East Africa, *Zea mays* (maize) in West Africa and *Gossypium* (cotton) in many parts of Africa (CABI, 2023). Where high populations are left uncontrolled on preferred hosts, significant impacts can be seen due to internal damage to fruits/flowers, premature ripening and fruit drop. Additionally, damage by the larvae may be followed by secondary fungal or bacterial infections (CABI, 2023; EPPO, 2023b). With regards to *Capsicum* spp., there is conflicting information on the level of damage caused by the pest (EFSA, 2020; EPPO, 2013). However, it is apparent that *Capsicum* is a source of numerous interceptions. In the UK, Capsicum accounted for 90% or 766 out of 846 confirmed interceptions of *T. leucotreta* between 2007 and 2021 (Defra, 2022).

Should an outbreak occur in a crop of *Capsicum* in Ireland impacts would likely be of short term duration only, given eradication of the *T. leucotreta* should be achievable in glasshouse situations see section 4.4 *Eradication measures*. In addition, the absence of *Capsicum* crops for certain periods should prevent the ongoing establishment of pest in Ireland, since *T. leucotreta* requires the availability of fruit all year round (EPPO, 2013).

Given the wide host range of *T. leucotreta*, other minor hosts grown under protection may become more relevant to Ireland following an outbreak, such as *Solanum lycopersicum* (tomato). Additionally, *T. leucotreta* has a history of affecting 'new' host plants. For example, Rosa spp. which until 10 to 20 years ago were not known as a host *of T. leucotreta* in Africa. However, following the increased cultivation of roses in sub-Saharan countries, *Rosa* spp. became a known host and also a major source of interceptions particularly into the Netherlands (EFSA, 2020; EPPO, 2013).

Considering *T. leucotreta* requires an all year-round availability of fruit/host plants this should limit its capacity for ongoing establishment in glasshouse situations, particular when there is a crop break. In addition, given the principal host at risk in Ireland is protected cultivation of *Capsicum* spp. which are crops that represent a very small area, the threat posed by *T. leucotreta* to Ireland is low.

2.2 Pathways of entry to Ireland

The most likely pathway of introduction is through infested fruit or cut flowers. On trade into EU, numerous interceptions of *T. leucotreta* from sub-Saharan countries are frequently reported in particular, on *Citrus* spp., *Rosa* spp. and *Capsicum* spp.

(EFSA, 2020).

While the transfer from infested commodities onwards to growing indoor crops is considered low, transfer may occur if importers of fruit are located close to glasshouses. The actual risk will be dependent on how infested commodities are stored and disposed of (EFSA, 2020; EPPO 2023b). Sufficient outdoor warm conditions would also be required.

Long distance natural spread is not a feature of the species. *Thaumatotibia leucotreta* been described as a poorly dispersing species, generally completing short distance flights between host plants. Where sufficient host plants are nearby, such as in citrus orchards in South Africa, females will fly a short distance reach another host plant for mating and egg-laying (EFSA, 2019). In more unsuitable habitats, the moth may disperse further to locate host plants. EFSA estimate the maximum annual spread distance for *T. leucotreta* to be approximately 1.5 km (EFSA, 2019; EFSA, 2020).

2.3 Current distribution

Thaumatotibia leucotreta is native to Africa, currently present in many Sub-Saharan Africa countries. Outside of Africa, the pest is present in Israel (EFSA, 2019; EFSA 2020).

The pest is not present in the EU, however previous outbreaks of the pest have occurred twice in the Netherlands (EPPO, 2010; EPPO, 2014) and once in Germany (EPPO, 2019). In each case the outbreaks occurred in glasshouses of *Capsicum* spp. crops and the outbreaks were all successfully eradicated. For the most recent outbreak in Saxony, Germany the source is unknown. However, it is assumed that the pest likely transferred from a waste container of a supermarket which was located nearby (EPPO, 2019).

The pest is adapted for warm climates and is cold sensitive. In addition, *T. leucotreta* lacks diapause that would enable it to bridge a period of unfavorable conditions (EPPO, 2013). Temperatures below 10°C greatly reduce survival rates, the moth cannot survive temperatures below 1°C (EFSA, 2019; EFSA 2021). Therefore, without warm locations for overwintering this species cannot move or survive outdoors very far north in the EU (EFSA, 2019). Potential establishment and distribution in the EU is likely only in southern EU countries.

Taken into account the degree days (DD) that *T. leucotreta* has been set at = 433

degree days i.e. the heat sum over the summer growing season to complete one generation (egg to egg) (EFSA, 2019) theoretically one generation could occur in Ireland. However, this is assuming eggs are laid early in the summer with populations then still only transient given *T. leucotreta* could not survive the cold outdoor winter temperatures in Ireland for establishment.

A map of its global distribution is listed on the EPPO database (Link) and in Appendix 2.

2.4 Factsheet and material for dissemination

A pest factsheet (DAFM Plant Pest Factsheet on *Thaumatotibia leucotreta*) summarising the threat *T. leucotreta* poses to Ireland is available on the DAFM website at the following link and in Appendix 1. This publication is directed to professional operators, citizen scientists and the general public. Thus, this material should be used in information campaigns to prevent outbreaks, in cases of the suspicion of *T. leucotreta* occurring and in the cases where an *T. leucotreta* outbreak has been officially confirmed.

3. Legal Basis and Standards

3.1 Current legislation

Thaumatotibia leucotreta is regulated as a priority pest (EU) 2019/1702 and is listed as a quarantine pest in Annex II A of the Commission Implementing Regulation (EU) 2019/2072. Additionally in Annex VII imports of the fruit of *Capsicum*, *Citrus* spp. (other than *Citrus limon* and *C. aurantiifolia*), *Prunus persica* and *Punica granatum* are currently subject to specific measures aiming to prevent entry of *T. leucotreta*.

In summary, the introduction into and spreading within all Member States of *T. leucotreta* is prohibited. In case of a finding of the occurrence of the pest in Ireland, measures shall be taken to eradicate the pest.

3.2 Emergency measures

There are currently no emergency measures for *Thaumatotibia leucotreta.* Should EU emergency measures be adopted against *T. leucotreta*, the contingency plan will be amended accordingly to reflect the new regulatory requirements.

3.3 Actions taken to prevent outbreaks

3.3.1 Surveys

As *T. leucotreta* is listed as a priority pest under Commission Delegated Regulation (EU) 2019/1702, DAFM is required by Article 22-24 of Regulation (EU) 2016/2031 to perform annual surveys of the pest in Ireland. Areas posing the highest risk to the introduction and spread of *T. leucotreta* should be identified and targeted for surveillance, protected cropping facilities for solanaceous and other hosts including ornamental pot plant nurseries and areas surrounding packing facilities as well as BCP's airports and ports. Solanaceous weeds and ornamental host plants grown in open ground, parks and gardens near high-risk sites should also be included.

3.3.2 Import Controls of Host Plants and Fruit

Official controls are required at point of entry into the union as detailed in the DAFM Generic Contingency Plan for Plant Health in Ireland Chapter 8.6. These official controls must ensure compliance with the following special requirements required by Annex VII of (EU) 2019/2072 on the imports of fruit of *Capsicum*, *Citrus* spp. (other than *Citrus limon* and *C. aurantiifolia*), *Prunus persica* and *Punica granatum*, DAFM performs border inspections on these commodities from countries where *T. leucotreta* is present. For cut flowers, another a major host of *T. leucotreta*, a phytosanitary certificate for their introduction into the EU is required, as listed in Annex XI of the same regulation.

3.4 Standards

This plan shall be used in conjunction with:

(a) EPPO Pest Risk Analysis for *Thaumatotibia leucotreta* September 2013
(b) EFSA Pest survey card on *Thaumatotibia leucotreta*
(c) EPPO Datasheet *Thaumatotibia leucotreta* last update 14/09/2021.
(d) OEPP/EPPO Bulletin (2019) 49 (2), 248-258 PM 7/137 (1) *Thaumatotibia leucotreta* Diagnostics.
(e) ISPM 27 Diagnostic protocols for regulated pests
(f) ISPM 15 Regulation of wood packaging material in international trade
(g) ISPM 14 The use of integrated measures in a systems approach for pest risk management

(h) ISPM 10 Requirements for the establishment of pest free places of production
(i) ISPM 9 Guidelines for pest eradication programs
(j) All other standards as outlined in DAFM Generic Contingency Plan for Plant Health in Ireland Chapter 2.1

4. Official Measures to be taken if *Thaumatotibia leucotreta* occurs

4.1 Suspicion of the occurrence of *T. leucotreta*

In the event of a suspicion of the occurrence of *T. leucotreta*, specific guidelines to follow are not prescribed in EU legislation, therefore the general guidelines are followed as in as in the case of any suspected quarantine and priority pest finding. These general guidelines are laid out in Regulation (EU) 2016/2031 and in DAFM Generic Contingency Plan for Plant Health in Ireland Chapters 3 & 4.

4.2 Occurrence of *T. leucotreta* is confirmed, establishment of demarcated areas

The Department will establish a demarcated area consisting of an infested zone and a buffer zone. The buffer zone will have an initial width of at least 1km around the infested zone.

If the occurrence of *T. leucotreta* is confirmed, measures to take following an outbreak specific to this pest are not detailed in any EU legislation. As in the case of any confirmed quarantine and priority pest finding, phytosanitary measures will be taken to eradicate and to prevent any further spread of *T. leucotreta*. As outlined in DAFM Generic Contingency Plan for Plant Health in Ireland Chapter 5.3 coordination with near member states and third countries should take place where required.

As detailed in section *2.1 Thaumatotibia leucotreta threat,* establishment of the pest outdoors in Ireland is not considered likely. Any outdoor finding would likely be an isolated finding with the cold weather eliminating the pest.

Indoor conditions such as in protected cultivation would support development of the pest. *Thaumatotibia leucotreta* requires continuous availability of fruits/host plants. For the

principal host crop at risk in Ireland, *Capsicum* there is a break between crops where no *Capsicum* or other suitable fruit is available thus potentially providing conditions that would hamper ongoing establishment. However, it is uncertain how *T. leucotreta* may be able to survive without hosts at pupal stage of its life cycle, with figures ranging from 40 to 72 days from observations and studies (EPPO, 2013). Specifically, for modern North Western Europe glasshouse production systems it is also uncertain if *T. leucotreta* is able to bridge the period from old crop to new crop. The outbreaks of *T. leucotreta* on *Capsicum* in Germany and the Netherlands only covered one season before the pest was successfully eradicated by the competent authorities.

Therefore, official measures should commence when the occurrence of *T. leucotreta* is confirmed in protected cultivation in Ireland.

As soon as the occurrence of *T. leucotreta* is confirmed, without delay a demarcated area consisting of (a) an infested zone and (b) a buffer zone should be established as in Fig 2 and below:

(a) an infested zone consisting of the site of production known to be infested (e.g. the glasshouse).

(b) a buffer zone with a width of 1 km around the infested zone

The buffer zone takes into account the EFSA estimate of the maximum annual spread distance for *T. leucotreta* as approximately 1.5 km (EFSA, 2019; EFSA, 2020). However, if *T. leucotreta* is officially confirmed in a site of production with physical protection that prevents the escape of insects, DAFM may consider reducing the width of buffer zone down to only that of the production site/infested zone.

Once the initial infested and buffer zones are demarcated, pest surveys will be conducted within the buffer zone working outwards from the infested zone in staged concentric bands. The size of each band will be decided in the action plan taking into account the landscape and associated challenges the location of the outbreak may pose. If the presence of *T. leucotreta* is confirmed in the buffer zone, or beyond, the delimitation of the infested zone(s) and buffer zone(s) shall immediately be reviewed and changed accordingly.

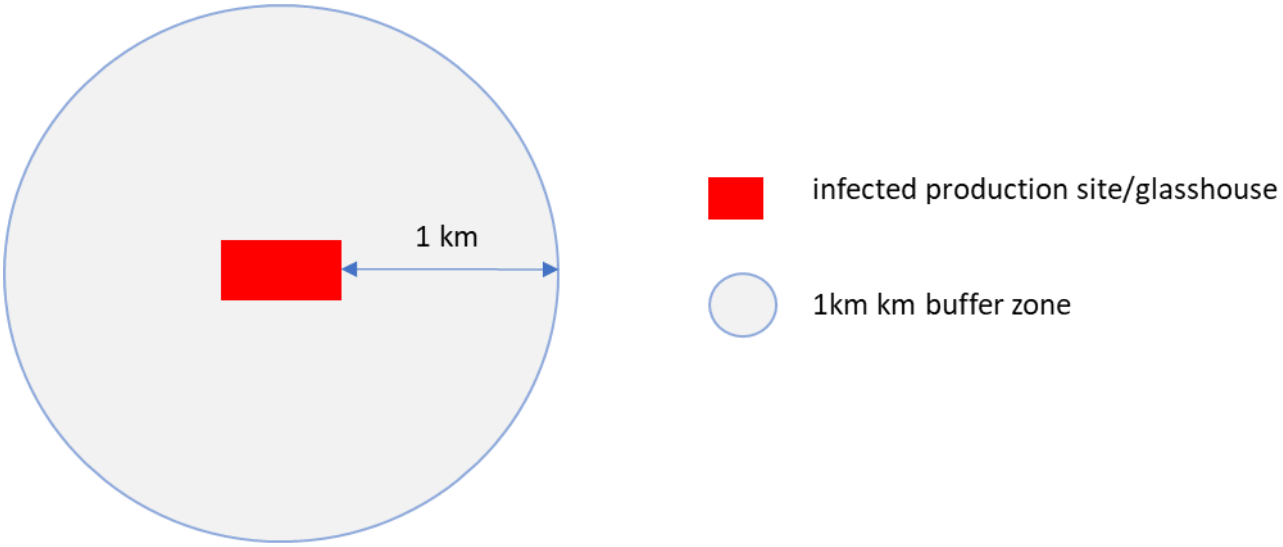

Fig 2. The layout of the infested and buffer zones for an outbreak of *T. leucotreta.*

4.3 Derogations for the establishment of demarcated areas

DAFM may determine no demarcated areas are necessary if one of the following conditions occur:

(a) there is evidence that *T. leucotreta* has been introduced into the area with the plants on which it was found and those plants were infested before their introduction into the area concerned, and it is ascertained that there is no spread or establishment of *T. leucotreta* has occurred; or

(b) there is evidence that it is an isolated finding, not expected to lead to establishment.

Where one of the conditions set out in Section 4.3 (a and b,) is satisfied, the competent authority shall take the following measures:

(a) immediate measures to ensure the prompt eradication of the specified organism and to exclude the possibility of its spread.

(b) regular and intensive surveillance during the period covering at least one life cycle of the specified organism, between 30 and 117 days depending on the temperature, (EFSA 2020). and one additional year in a radius of at least 1 km around the place where the specified organism was found;

(c) The supervised destruction/disinfestation of any infested plant material, soil, freight material, equipment, machinery, storage facilities to remove the pest

using an appropriate method.

(d) The investigation of the origin of the infestation by the tracing of plants, soil or freight material as far as possible and the examination thereof for any sign of infestation. Priority should be given to previous and expected consignments of the same genus from an affected Importer.

(e) activities to raise public awareness concerning the threat of that organism.

(f) any other measure, which may contribute to the eradication of the specified organism, taking account of international standard for phytosanitary measures ('ISPM') No 9 and applying an integrated approach according to the principles set out in ISPM No 14.

For the purposes of point (d), the examination shall include targeted destructive sampling.

The measures referred to in points (a) to (f) shall be presented in the form of a report.

4.4 Professional Operators

Professional operators will act in accordance with the direction of the Department to eradicate the pest, prevent its further spread, and provide the information necessary to conduct trace forward/back investigations.

1. Where a professional operator receives an official confirmation concerning the presence of the pest in plants, plant products or other objects which are under that operator's control, the Department will give direction on the actions to be taken.

2. The professional operator shall immediately take the necessary measures to prevent the spread of the pest. On a case-by-case basis, the Department will provide instructions concerning those measures, the professional operator shall act in accordance with those instructions.

3. Where so instructed by the Department, the professional operator shall take the necessary measures to eradicate the pest from the plants, plant products or other objects which are under its control.

4. Unless otherwise instructed by the Department, the professional operator shall, without delay, withdraw from the market the plants, plant products and other objects which are under that operator's control and in which the pest could be present.

5. The professional operator shall provide to the Department the necessary

information to conduct a trace forward/back investigation.

4.5 Restriction on the movement of plant, produce and soil

(a) Host plants and fruit originating in a demarcated area may be moved within the Union only if they are accompanied by a plant passport prepared and issued in accordance with Section 2 of Regulation 2016/2031.

(b) The place of production shall be registered in accordance with Article 65 of Regulation 2016/2031 and ISPM 10 guidelines.

(c) The place of production shall have been subjected annually to at least two meticulous official inspections carried out at appropriate times and shall show no sign of infestation by the specified organism. The inspection shall include monitoring pest traps and crop walks.

(d) Movement of soil out of the infested area will be restricted, if necessary, until disinfestation can be undertaken and subsequently inspected/confirmed by DAFM inspectors.

(e) Movement of equipment and machinery out of the infested area will be restricted until disinfestation can be undertaken and subsequently inspected/confirmed by DAFM inspectors.

4.6 Eradication measures

Where the finding of *Thaumatotibia leucotreta* is officially confirmed, the Department will immediately take all necessary phytosanitary measures to eradicate the pest from the infested zone.

If a demarcated area is necessary, DAFM should take the following measures to eradicate *T. leucotreta*

(a) In the case of an outbreak in a protected cultivation facility, quarantine procedures will be enacted. Actions on the site will aim to restrict the further spread of the pest, these may include but are not limited to sealing the protected cultivation facility, restricting the movement of people and materials in and out of the facility.

(b) the whole of the infested growing crop should be treated as soon as possible with a foliar insecticide. All other susceptible hosts crops in the infested zone should be also be treated. If possible, host crops in the vicinity of the site should be treated and destroyed out to 50m, using the insecticide first prior to an application of an herbicide aimed at killing host plants, It may be necessary to obtain plant protection product approvals for emergency application of Plant Protection Products considered necessary for the control of all stages of the moth, foliage, weeds, or herbaceous hosts in accordance with DAFM Generic Contingency Plan for Plant Health in Ireland, Chapter 8.8.1. (e).

(c) eradication of the pest relying solely on insecticide use may be difficult to obtain given a large part of the pest's lifecycle is contained within fruit. Visual inspection and pheromone traps should be used to assess the efficacy of insecticides applications.

(d) all affected fruit and host plants in the infected zone should be removed and destroyed under the supervision of DAFM. Infected material should be transported to an approved facility for disposal or processing in such a way that there is no risk of spread. When moving plants, fruit and infested items for destruction sealed containers must be used to prevent the pest from escaping and those containers subsequently destroyed.

(e) all remaining material e.g. string, plastic flooring and growing media, should be destroyed or disinfected thoroughly to remove any remaining life stages of the moth;

(f) glasshouses and all non-disposable material, equipment and machinery should be thoroughly cleaned and disinfected;

(g) if applicable, lowering the temperature of the empty glasshouse to kill any moths present;

(h) Where appropriate, the disinfestation/disposal of potentially infested soil or growing medium in the production facility. Soil eradication measures can include steaming, burial (at least 2 meters deep), treatment with suitable plant protection products or biocontrol agents if available.

(i) investigation of the origin of the infestation by the tracing of plants concerned, as far as possible, and the examination thereof for any sign of infestation;

(j) prohibition of planting of new host plants in the infested zone during the

outbreak period;

(k) activities to raise public awareness concerning the threat of *T. leucotreta* and the measures adopted to prevent its introduction into and spread;

(l) where necessary, specific measures to address any particularity or complication that could reasonably be expected to prevent, hinder or delay eradication, in particular those related to the accessibility and adequate eradication of all plants that are infested or suspected of infestation, irrespective of their location, public or private ownership or the person or entity responsible for them as outlined in DAFM's General Contingency Plan for Plant Health 4.1.1.

(m) any other measure, which may contribute to the eradication of the specified organism, taking account of ISPM No 9 and applying an integrated approach according to the principles set out in ISPM No 14 and as outlined in Generic Contingency Plan for Plant Health 5.1.2.

As an derogation to (c) above, there may be justification in some scenarios (e.g. low levels of infestation) not to remove all of the crop located in the infected zone, this will be decided by DAFM on a case by case basis.

4.7 Surveys in demarcated areas

In the demarcated areas, surveys should be intensified and be both based on visual inspections and the use of pheromone traps. The number of pheromone traps to monitor for the presence of the pest and the frequency with which the traps are checked will be decided by DAFM.

4.8 Action Plan

Where the presence of *Thaumatotibia leucotreta* is officially confirmed, the Department will immediately adopt an action plan setting out in detail the measures for the eradication of the pest, or its containment, as well as a time schedule for the application of those measures.

The pest specific action plan will describe the actions required to deal with an outbreak of *Thaumatotibia leucotreta* and will provide detail on:

a) Imposing control measures on the movement of host plant material, and

eradication measures for a specified period in the infested area

b) The timetable for implementing these measures
c) The design and organisation of the surveys to be carried out
d) The number of visual examinations, sampling and tests to be carried out by laboratories
e) The methodology for sampling and testing as per ISPM 31 guidelines where appropriate,
f) Conducting an investigation to determine the source and extent of the outbreak,
g) Demarcation of the infested area,
h) Demarcation of the infested plant material,
i) The implementation of containment measures, such as buffer zones, to prevent further spread,
j) Disposal of infected plant material in accordance with best practices,
k) Appropriate biocontrol treatments of equipment, machinery and infested area,
l) Monitoring the effectiveness of the measures taken.

The action plan shall be based on this contingency plan and will be communicated to the professional operators concerned, as required.

The Department will notify the Commission and the other Member States of the action plans it has adopted.

4.9 Lifting of the demarcated areas

The demarcation may be lifted if there is no detection of *T. leucotreta* over a period covering two successive lifecycles of the pest following the removal of the infested crop. The duration of the lifecycle of the pest will depend on the temperature inside the production facility, it takes on average 42-46 days for the pest to complete its lifecycle at optimum temperature of 25 °C.

The demarcation may also be lifted in cases where the conditions set out in *4.3 Derogations for the establishment of demarcated areas* are subsequently found to be met.

5. Criteria for declaring eradication / change of policy

5.1 Termination of eradication actions

In the case where no demarcated area has been established (i.e. conditions are met for the above section *4.3 Derogations for the establishment of demarcated areas*) official measures can end.

Where *T. leucotreta* is not detected in a demarcated area over a period covering two successive lifecycles, that demarcation may be lifted, thus the outbreak of *T. leucotreta* may be declared eradicated. In such cases, the Member State concerned shall notify the Commission and other Member States by means outlined in the DAFM Generic Contingency Plan for Plant Health in Ireland Chapter 11.

Should surveys reveal that *T. leucotreta* has become established over such an area that eradication is not considered feasible, DAFM may consider applying containment measures for ongoing control of the pest. See also procedures laid out in DAFM Generic Contingency Plan for Plant Health in Ireland Chapter 6.

6. Evaluation and review of the contingency plan

6.1 Review and future versions

This contingency plan should be updated as appropriate every year. The review should consider updates on legislation, control measures, susceptible host plants, pest distribution, pest biology, diagnostics and any other relevant amendments. Should any outbreak of *T. leucotreta* occur, effectiveness of the measures applied, and lessons learned should be included in further reviews of this contingency plan. Reviews will be carried out in accordance with DAFM Generic Contingency Plan for Plant Health in Ireland Chapter 13.

7. Minimum Resources

The minimum resources to be made available and the procedures for making those additional resources available in case of a confirmed or suspected presence of *T. leucotreta* are as outlined in DAFM Generic Contingency Plan for Plant Health in Ireland Chapters 5.2.

8. Command Structure

The roles, responsibilities, and chain of command of the bodies involved are as laid down in DAFM Generic Contingency Plan for Plant Health in Ireland Chapter 8.

9. External Communication

Measures for provision of information to Commission, other member states and all stakeholders in the event of a confirmed or suspected presence of *T. leucotreta* shall be in accordance with DAFM Generic Contingency Plan for Plant Health in Ireland Chapter 11.

10. Training and Testing of Personnel

Principles concerning the training of personnel of the competent authorities and, where appropriate, the bodies, public authorities, laboratories, professional operators and other persons shall be in accordance with DAFM Generic Contingency Plan for Plant Health in Ireland Chapter 12

Appendices

Appendix 1: *Thaumatotibia leucotreta* two-page factsheet

DAFM Plant Pest Factsheet

Thaumatotibia leucotreta
false codling moth (FCM)

EU Priority Pest!

Fig 1: Adult female (L) and male (R) *Thaumatotibia leucotreta*

Pest Characteristics

- **Pest:** *Thaumatotibia leucotreta*
- **Common name:** false codling moth (FCM)
- **Hosts:** *Thaumatotibia leucotreta* is a polyphagous species. In its current distribution it feeds on many hosts of agricultural importance such as *Capsicum* spp.(pepper), *Citrus* spp., *Gossypium* sp.(cotton), Punica granatum (pomegranate), *Prunus persica* (peach), *Solanum melongena* (aubergine) and *Zea mays* (maize).
- **Invasive Risk:** Ireland is currently not considered at risk for the outdoor establishment of this tortrix species. Of the major hosts of relevance to Ireland, only protected (e.g. glasshouse) crops of *Capsicum* spp. are likely at risk. The risk of entry is high given the numerous interceptions of *T. leucotreta* that are reported every year into the EU.
- **Entry Pathways:** The most likely introduction of *T. leucotreta* is through import of infested fruit or cut flowers particularly on *Capsicum* spp., *Citrus* spp., and *Rosa* spp. commodities where most interceptions have occurred.
- **Impact:** Larvae feed inside the fruits and flowers buds. Economic losses could occur in Ireland given there is a very low tolerance for damage to *Capsicum* crops. Impacts would likely be short term considering the pest requires an all year-round availability of fruit/ host plants, this should limit its capacity for ongoing establishment in glasshouse situations.
- **Symptoms:** Small pale pink larvae on/inside the fruit (Fig 2 a) may indicate presence of *T. leucotreta*. Symptoms can include entrance or exit holes, protruding frass, discoloration of the fruit skin and rotting (b - d)

Fig 2: (a) larvae of *T. leucotreta* (b) entrance hole and rotting on pepper (c) larvae damage in centre of rose and (d) external symptoms on orange with entrance hole. More photos are available on the EPPO Database

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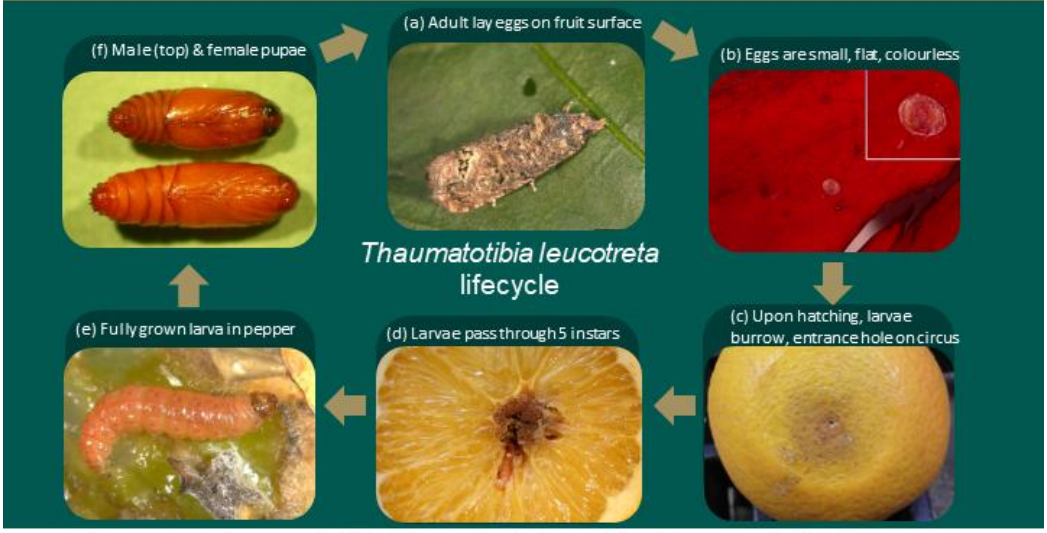
DAFM Plant Pest Factsheet



- **Lifecycle:** *Thaumatotibia leucotreta* is multivoltine and the life cycle proceeds from (a & b above) the laying of eggs on the surface of smooth fruit or on flower buds (c & d) after hatching, larvae bore into the fruit and go through five larval instars (e) upon maturity the larvae exit the fruit and drop to the ground where they enter the pupal stage. Adults then emerge without any diapause. Females are inactive during the day, fly at night and attract the males by means of pheromones. It takes, on average, 42–46 days to complete the life cycle at the optimum temperature of 25°C.
- **Adaptability:** The pest is adapted for warm climates and is cold sensitive. Therefore, only protected glasshouse cultivation is at risk in Ireland.
- **Dispersal:** *Thaumatotibia leucotreta* been described as a poorly dispersing species, generally completing short distance flights between host plants. Long distance natural spread is not a feature of the species.
- **Distribution:** The moth is currently present in many Sub-Saharan Africa countries. Outside of Africa, the pest is present in Israel (Fig 3).
- **If suspected:** DAFM perform annual surveys to substantiate Irelands pest free status for *T. leucotreta* . If you find suspected symptoms/specimens, please submit images to DAFM at: plantpestreport@agriculture.gov.ie

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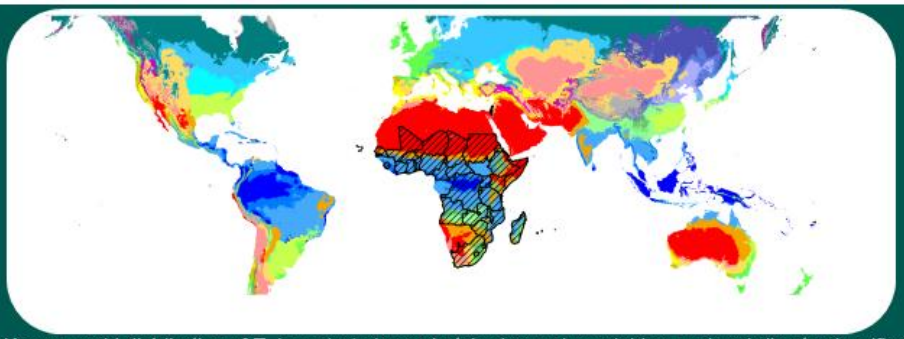

Fig 3: Known world distribution of *T. leucotreta* (cross hatched areas) overlaid on regional climate classifications

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Department of Agriculture, Food and the Marine

Appendix 2: *Thaumatotibia leucotreta* distribution worldwide

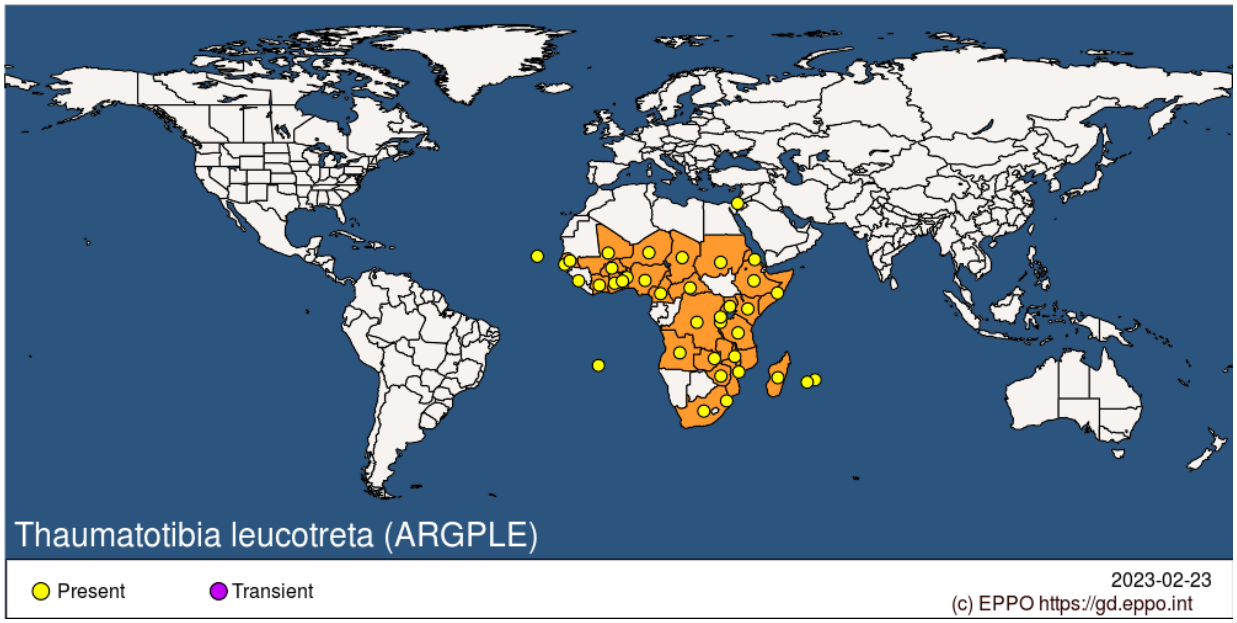

Fig3: Map showing distribution of *Thaumatotibia leucotreta* worldwide as of 23.02.2023 © EPPO (https://gd.eppo.int/taxon/ARGPLE/distribution)

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