





Summary of the EPPO (European and Mediterranean Plant Protection Organisation) PRA on *Prodiplosis longifila* (Diptera: Cecidomyiidae) and its implications for Great Britain in preparation for new GB legislation.

 <p><small>Prodiplosis longifila (PRDILO) - https://gd.eppo.int</small></p>	 <p><small>Prodiplosis longifila (PRDILO) - https://gd.eppo.int</small></p>
<p><i>Prodiplosis longifila</i> (adult female) Credit: Maria Manzano (Universidad de Colombia, sede Palmira, Colombia) https://gd.eppo.int/taxon/PRDILO/photos</p>	<p>Tomato fruit necrosis around the petiole caused by <i>P. longifila</i> Credit: Daniel Rincón https://gd.eppo.int/taxon/PRDILO/photos</p>

Background

Prodiplosis longifila Gagné is a gall midge pest of fruit and vegetable crops including onion (*Allium cepa*), asparagus (*Asparagus officinalis*), bell and hot peppers (*Capsicum* spp.), cucumber (*Cucumis sativus*), beans (*Phaseolus* spp.), tomato (*Solanum lycopersicum*) and potato (*Solanum tuberosum*). Its native distribution is unknown, but it is present in the south of the USA, Colombia, Ecuador and Peru. It was added to the EPPO (European and Mediterranean Plant Protection Organisation) Alert list in 2015, and moved to the EPPO A1 list in 2017. It was added to the UK Plant Health Risk Register in 2016, with the scores being reviewed following the EPPO PRA in 2017.

The EPPO PRA (Pest Risk Analysis) for *P. longifila* (September 2017) concludes that this pest poses a high risk (with moderate uncertainty) to the EPPO region. Tomato and asparagus imports from South America were considered the most likely pathways for entry. Climatic modelling estimated that this pest could establish outdoors in the EPPO

region as far north as the south of the UK. *Prodidiplosis longifila* was also considered a threat to glasshouse crops across the EPPO region.

A link to the full EPPO PRA can be found at the following webpage:

<https://gd.eppo.int/taxon/PRDILLO/documents>

A summary of the main findings of the EPPO PRA and their significance to GB are given below.

Crop/sector considered most at risk in GB

In its current area of distribution, *P. longifila* attacks a wide range of crop and wild plants. In South America, tomato is the main host in all countries. Other major hosts vary depending on country (e.g. asparagus and bell pepper in Peru; potato in Ecuador). In the USA, it has been found on wild *Gossypium* (cotton) and *Solanum carolinense*, but reports of notable impact are limited to *Citrus x latifolia* (Tahiti lime).

If this pest were to establish in GB, it is expected that it would have unacceptable economic impacts through crop losses and increased costs for pest control on crops such as asparagus, bell pepper and tomato.

Summary and conclusions of the EPPO PRA

Risk of entry

One reference cited in the PRA mentions that unchecked transport of plant material has contributed to the dispersal of this pest in the Americas. The fruits of some hosts (tomato and bell/hot peppers) were considered to be a pathway for the egg and larval stage of this pest. The PRA notes that bean pods are only infested when populations are high and that the pest is only associated with the pod (not beans without pods). With the mitigations that were in place at the time in the EPPO region, the likelihood of entry on tomato vines and bell/hot pepper fruit was considered **moderate-high**; on other tomatoes the likelihood was considered **moderate**; and for all other fruit of hosts, likelihood was considered **low** (all evaluations with a **moderate** rating for uncertainty). Plants for planting of all hosts were assumed to be a pathway for the egg, larval, pupal and possibly the adult stage of this pest. With the mitigations that were in place at the time in the EPPO region, the likelihood of entry on plants for planting was considered **high** with a **moderate** rating for uncertainty. Cut plant parts were considered to be a pathway for eggs and larvae. This pest causes damage to asparagus spears, therefore the likelihood of the pest entering the EPPO region on asparagus was considered **moderate-high** (with **moderate** uncertainty), for other cut plants it was considered **moderate** (with **high** uncertainty).

Significance to GB: Within existing EU regulations (which came into effect after the EPPO PRA) and the new EU exit regulations coming into force, all plants for planting, and all but a very short list of plant parts and fruits (none of which have been identified as a

pathway*) require a phytosanitary certificate, and as such may be subject to inspection. Some host plants for planting e.g. tomato, pepper and potato (as plants belonging to the Solanaceae family) are prohibited from the Americas. These mitigations do not significantly reduce the risk of host commodities being infested by this pest, therefore specific measures will be proposed that address the risk pre-border.

*Note, there is a sentence in the EPPO PRA which suggests Citrus leaves are a risk, however the actual references do not.

Risk of establishment and spread

It was concluded that the likelihood of *P. longifila* establishing outdoors in areas of Western Europe with an oceanic climate where hosts were grown (e.g. GB) was **moderate** (with a **high** rating for uncertainty). The likelihood of *P. longifila* establishing under protection in the EPPO region not including the Mediterranean Basin, Portugal, eastern and southern Black Sea coasts, but including GB was **moderate** (with a **moderate** rating for uncertainty). Though the ability of *P. longifila* to spread by natural means was considered quite limited (due to its size and the short lifespan of the adult), the potential magnitude of spread for this pest was rated as **high** with a **low** rating of uncertainty. This was because of the potential for human-assisted spread in infested commodities, particularly if the pest was introduced to an area where it could survive outdoors and which trades in host commodities.

Significance to GB: The EPPO PRA suggests that the limiting low temperature for this pest is 5°C, and the optimal range is between 20 and 27°C. The likelihood for establishment outdoors in GB was lower than for the Mediterranean Basin, Portugal, eastern and southern Black Sea coasts, and therefore the expected rate of spread within GB might also be lower than the rating given for the EPPO region as a whole.

Economic, environmental and social impact

The PRA concludes that the overall impacts to the EPPO region would be lower than those observed in the Americas because the outdoor climate is likely to be suboptimal for this pest. However, a wide range of the pest's hosts are found throughout the region, and the pest could establish and cause damage to glasshouse crops. In areas where host crops are not grown, the PRA was uncertain whether populations could survive in the long-term on wild hosts alone. Some of the suggested costs associated with the introduction of this pest include loss of harvest; rejection of harvested fruit and vegetables (as the region has a low tolerance of defects in external appearance); increase in production costs; disruption of IPM (Integrated Pest Management) programmes; and impacts on external markets. The likely magnitude of impact on asparagus, bell pepper and tomato was rated as **high** with a **moderate** rating for uncertainty. The likely magnitude of impact on other hosts was considered **low**, again with a **moderate** rating for uncertainty. Pesticide applications were suggested as a secondary environmental impact, and social impacts were expected to be minor overall, but possibly major locally.

Significance to GB: Approximately 3000 acres of land in Southern England are used for growing asparagus and production is worth £36 million at wholesale value (Chinn, C.

Chairman of the Asparagus Growers' Association pers. comm. 2020); an estimated 140 acres of glasshouse are dedicated to pepper production in Britain (Lea Valley Growers' Association); and British tomato production is worth £84 million (Defra: Agricultural in the UK 2019), this equates to approximately £190 million at retail value (British Tomato Growers' Association). Even if the pest was only able to establish within glasshouses, the economic impact to British growers could be significant.

Risk management recommendations

The following is a summarised version of the EPPO EWG (expert working group) recommendations, see EPPO PRA - Section 16 for the recommendations in more detail, see Section 8, Table 3 for underlined host classifications.

The EWG recommended that plants for planting (except seeds) of cultivated hosts should have a Phytosanitary certificate and;

- have come from a PFA (Pest Free Area) (with general surveillance and specific surveys in place)

- OR have come from a Pest free production site/place of production under complete physical isolation (including regular inspections during the growing period)

- in either of the above cases, only new packaging should be used at origin and packaging should be destroyed or safely disposed of at import.

The EWG also recommended that phytosanitary measures should apply to all fruit hosts. It was recommended that these fruits should have a Phytosanitary certificate and;

- have come from a PFA

- OR have come from a Pest free site of production under physical protection

- OR be subject to a Systems approach

- OR only be imported in winter for direct consumption or immediate processing

- OR surveillance be in place in the importing country and separation of trade and production flows

- in all of the above cases, only new packaging should be used at origin and packaging should be destroyed or safely disposed of at import.

For cut plant parts of cultivated hosts, the EWG recommended the same measures as for fruit. For passengers carrying plants for planting, fruit and cut plant parts of main hosts, awareness raising and inspection of luggage was recommended.

Significance to GB: Within existing EU regulations (which came into effect after the EPPO PRA) and the new EU exit regulations coming into force, all plants for planting, and nearly all plant parts and fruit () require a phytosanitary certificate, and as such may be subject to inspection. Using the EPPO PRA recommendations, new GB regulations will be drafted with the aim of further mitigating the risk of introducing this pest.