

### Mini data sheet on *Prodiplosis longifila*

*Prodiplosis longifila* was added to the EPPO A1 List in 2017. A full datasheet will be prepared, in the meantime you can view here the data which was previously available from the EPPO Alert List (added to the EPPO Alert List in 2015 - deleted in 2017).

#### *Prodiplosis longifila* (Diptera: Cecidomyiidae)

**Why:** *Prodiplosis longifila* (Diptera: Cecidomyiidae) was identified in the EPPO study on pest risks associated with the import of tomato fruit as possibly presenting a risk for the EPPO region. *P. longifila* is a serious pest of tomatoes (*Solanum lycopersicum*) and other crops such as asparagus (*Asparagus officinalis*) in South America. *P. longifila* was later selected as a priority for PRA by the EPPO Panel on Phytosanitary measures. An EPPO Expert Working Group will meet in December 2015 to conduct PRAs on several tomato pests, including *P. longifila*.

**Where:** *P. longifila* has been recorded in several South American countries and in Florida (US). As the identification of this tiny bud midge is complex, its geographical distribution might be incomplete. Some publications mention its presence in the 'West Indies' but detailed records for individual countries in the Caribbean could not be found and a previous record for Jamaica is now considered to be a misidentification.

**EPPO region:** absent

**North America:** USA (Florida). It was first reported in the 1930s on wild cotton (*Gossypium hirsutum*), but damage was reported for the first time on lime (*Citrus aurantifolia*) in the 1980s.

**South America:** Colombia, Ecuador, Peru.

**On which plants:** *P. longifila* is polyphagous and has been recorded on many plant species. However, economic damage is mainly reported on tomato (*S. lycopersicum*), *Capsicum* spp., asparagus (*Asparagus officinale*) and to a lesser extent on Tahiti lime (*C. aurantifolia*, *C. latifolia*), and potato (*S. tuberosum*). Lists of host plants include important crops such as: *Allium cepa* (onion), *Citrullus lanatus* (watermelon), *Cucumis melo* (melon), *Cucumis sativum* (cucumber), *Cynara scolymus* (artichoke), *Glycine max* (soybean), *Medicago sativa* (alfalfa), *Phaseolus vulgaris* (beans), *Ricinus communis* (castor bean), *Vitis vinifera* (grapevine).

**Damage:** damage is caused by larvae feeding on different plant parts (e.g. buds, flowers and small fruit) and may vary according to the type of crop attacked. Larvae of *P. longifila* scrape the epidermal tissues of plant parts using piercing-sucking mouthparts.

**On tomato,** eggs are laid in leaf buds, flowers and under the fruit calyx. Larvae feed on epidermal tissues of leaf buds, flowers (ovaries and stamens) and small fruits. Attacked plant tissues become brown and necrosis develops around the fruit petiole thus altering the commercial value of tomato fruits.

**On sweet pepper (*Capsicum annuum*),** larvae feed on young fruits (i.e. when 2 cm long). Attacked fruit change from green to a purplish colour and stop growing.

**On asparagus,** eggs are laid on new spears when they emerge from the ground and larval feeding can cause severe distortions that render the plant unmarketable (more particularly on green asparagus).

**On potato and alfalfa,** larvae feed on buds causing leaf distortion and plant stunting.

**On Tahiti lime,** larvae feed on epidermal tissues of the ovaries, pistils and stamens of flower buds and flowers. Feeding damage causes the abortion of flower buds, as well as abscission of flowers and small fruits.

Pictures of damage can be viewed on the Internet:

<http://ffernandodiazs.galeon.com/album1589213.html>

<http://elproductor.com/2012/04/19/tomate-manejo-sostenible-de-la-negrita-prodiplosis-longifila-en-el-ecuador/>

<https://www.intagri.com/articulos/fitosanidad/negrita-del-tomate#sthash.Avtvuuh9.dpbs>

Adults are small flies, approximately 1.5 mm long, and short-lived (1 or 2 days). Eggs are small (0.27 mm long), transparent and hatch within 1 or 2 days. Three larval stages have been observed. Fully grown larvae are about 1.9 mm long, and larval development requires 8 to 12 days. Pupation takes place in the soil (1.5 cm deep) and lasts 4 to 5 days.

**Dissemination:** adults can fly and are also dispersed by wind. Eggs and larvae are present in different plant parts and can easily be moved, unnoticed, with plant material. Soil attached to plants might also contain pupae. It is considered in Ecuador, that the movement of planting material of tomatoes has most probably contributed to the spread of the pest.

**Pathways:** fruits, vegetables, plants for planting, cut flowers of host plants, potato tubers with associated soil?, soil, from countries where *P. longifila* occurs.

**Possible risks:** tomato, capsicum, potato, alfalfa (and some plant species listed above) are major crops in the EPPO region, whereas some other hosts such as lime, asparagus or melons are cultivated mainly in the Southern part of the region. According to the EPPO Study, the climatic similarity between the area where it occurs and the EPPO region is medium. The pest is favoured by warm climates with high relative humidity, and is negatively affected by temperatures below 11 C° or above 28 C°. However, *P. longifila* might be able to establish in glasshouses. Due to its small size and hidden mode of life, *P. longifila* is difficult to detect on plant material. In its area of origin, *P. longifila* is causing economic damage on major crops, such as tomato and asparagus. For example, up to 100% and 60% crops losses have been reported in tomato production in Colombia and Ecuador, respectively. Attacks are observed both in field and protected tomatoes, and in some cases tomato cropping has been abandoned. As many different types of damage and host plants are recorded, it has been hypothesized that populations collected from different hosts might correspond to a complex of cryptic species rather than a single polyphagous species, but this remains to be confirmed. In South America, control strategies are being developed and include monitoring of adult populations (light traps with sticky panels), chemical control, elimination of plant debris, weed control, and good irrigation practices. Research is also being carried out on the possible use of parasitoids (*Synopeas* sp. Hymenoptera; Platygasteridae) or entomopathogenic fungi (*Beauveria bassiana*). As *P. longifila* may present a risk to tomato crops and other host plants, it is desirable to avoid its introduction into the EPPO region.

## Sources

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