



Department
for Environment
Food & Rural Affairs

Plant Pest Factsheet

Sunflower maggot

Strauzia longipennis



Figure 1. Adult *Strauzia longipennis*, Washington, USA. © Katja Schulz.

Background

Strauzia longipennis (Wiedemann) (Diptera: Tephritidae), commonly known as the sunflower maggot, is native to North America, and is a pest of *Helianthus annuus* (sunflower). In 2010, two females of the species were recorded on a young sunflower in Treptow-köpenick, a borough of Berlin, Germany. This was the first record of the species in Europe and was followed by three more records of the fly in Wartenberg, Lankwitz and Tempelhof, also boroughs of Berlin, in the same year. In view of these findings and the importance of sunflower cultivation in Europe, *Strauzia longipennis* was added to the EPPO Alert List in 2011. The fly was subsequently recorded in urban areas of Berlin and in fields of Land Brandenburg in 2011 and 2012, confirming its establishment in Germany. Given its native climate and the range of its host, there is potential for this fly to spread throughout Europe and into the UK.

Geographical Distribution

Strauzia longipennis is widespread in its native range of the USA and Canada. It is now also present in Germany, probably from as early as 2008.

Host Plants

The fly's primary host is *H. annuus* (sunflower). It has also been observed on other *Helianthus* species, such as *H. maximilianii* (maximilian sunflower) and *H. tuberosus* (Jerusalem artichoke), and on species of the Asteraceae family, including *Ageratina altissima* (white snakeroot), *Ambrosia trifida* (Giant ragweed), and *Smallanthus uvedalia*.

Description

The **eggs** are around 1 mm in length and are white, with an elongated shape.

The **larvae or maggots** are up to 7 mm long (in the final instar) and have a creamy white colour (see Fig. 2).

The **pupae** are slightly elongate and white brown (see Fig. 3).

The **adults** are approximately 6 mm in length, with a wingspan of 13 mm. Their bodies are yellow to orange in colour and their eyes are red and/or green. Their wings are covered in light and dark brown bands, and characteristically, these bands form an **F** pattern toward the wing tips (see Fig. 4).



Figure 2. *Strauzia longipennis* larva. © Peter Baufeld



Figure 3. *Strauzia longipennis* pupae. © Peter Baufeld



Figure 4. Adult male *S. longipennis*. © Peter Baufeld

Biology

Strauzia longipennis has one generation per year in North America. Adults emerge in June and are active until the end of July. They lay their eggs within the stem of young sunflower plants. After a week, the eggs hatch and larvae feed within the pith (= the soft central tissue of the stem). Over the next six weeks, the larvae develop through three instars. Mature larvae then leave the plant in mid-August to find a suitable spot to overwinter, usually within plant debris or the upper soil layer. In Canada, the larvae pupate, and winter is spent in the pupae stage. Larvae also pupated prior to winter in a breeding stock in Berlin, suggesting that they are most likely to be the Canadian biotype.

Damage and Detection

Larvae form tunnels, as they feed up and down the pith of the stem (Fig. 5). In large infestations, the pith can be completely destroyed, leaving the stem unstable and susceptible to breakage (Fig. 6; Sandra Lerche, pers. comm., 2015). The wounds caused by the fly can also leave the sunflower open to attack from fungi, such as *Sclerotinia*. Further symptoms associated with *S. longipennis* include discoloured scar tissue, which arises when the adult punctures the stem to lay its eggs (Fig. 7), and exit holes, which may number up to 20 depending on the level of infestation (Fig. 8).

Economic Impact

Strauzia longipennis is generally considered a minor pest in North America. Even when the fly is found in high numbers, economic damage is rare. This is partly due to its biology; it seldom enters the roots and spends much of its lifecycle in the pith of the stem, a region that is principally a supporting structure of the plant with little nutritional value. Nonetheless, there have been reports of up to 37% yield loss in sunflower seed in Canada. Populations of the fly might also be suppressed in their native range by natural enemies, such as the parasitoid wasp *Coptera strauziae*, and by chemical treatments that are already used against more serious sunflower pests like the sunflower beetle *Zygogramma exclamations*. In 2014, trial fields in Berlin suffered heavy damage from *Strauzia longipennis* infestation and associated secondary infection, with at least 85% of sunflower plants affected (Peter Baufeld, pers. comm., 2015). The fly therefore has the potential to cause considerable harm to sunflower cultivation in Europe.

Control Measures

There is little information available concerning appropriate chemical and biological treatments. Currently, the best practice for minimising damage caused by *S. longipennis* is to not cultivate sunflowers in the same location in consecutive years, thereby avoiding the build-up of the pest. As *S. longipennis* is a strong flier, new fields should be a considerable distance from recently used fields. Plants previously grown in these fields should also not have been affected by *Sclerotinia*.



Figure 5. Larval tunnelling. © Peter Baufeld



Figure 6. Severe damage to stem. © Peter Baufeld



Figure 7. Necrotic spots/discoloured tissue on stem. © Peter Baufeld



Figure 8. Exit hole. © Peter Baufeld

Advisory Information

Yellow sticky traps coated with a chemical lure, consisting of ammonium carbonate and ammonium acetate, have proved to be effective in catching *S. longipennis* in Germany, and may be useful in tracing the spread of the dipteran across the rest of Europe (Peter Baufeld, pers. comm., 2015).

Suspected findings of sunflower maggot or any other non-native plant pest should be reported to the relevant authority:

For **England and Wales**, contact your local **APHA Plant Health and Seeds Inspector** or the **PHSI Headquarters**, Sand Hutton, York. Tel: 01904 405138

Email: planthealth.info@apha.gsi.gov.uk

For **Scotland**, contact the **Scottish Government's Horticulture and Marketing Unit**:

Email: hort.marketing@gov.scot

For **Northern Ireland**, contact the **DARD Plant Health Inspection Branch**:

Tel: 0300 200 7847 Email: planthealth@dardni.gov.uk

For additional information on UK Plant Health please see:

<https://secure.fera.defra.gov.uk/phiw/riskRegister/>

<https://www.gov.uk/plant-health-controls>

<https://www.dardni.gov.uk/>

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