

# *Drosophila suzukii* Matsumura

## Spotted wing drosophila / suzuki-asynvlieg (SWD)

### Background

*Drosophila suzukii* Matsumura, spotted wing drosophila (SWD), is native to Asia and has spread to several fruit producing countries around the world affecting soft-skinned fruits. Unlike most vinegar flies (e.g., *D. melanogaster*) that only infest fruit secondarily, female SWD can lay eggs in fresh and ripening fruit using a serrated ovipositor (Panel C). However, like other vinegar flies, SWD will also infest fruit not on the primary host list if the fruit is already damaged. Several factors including a high rate of reproduction and short generation time have contributed to the rapid spread elsewhere in the world where significant economic losses have been reported. *Drosophila suzukii* is of critical importance for soft-skinned fruits in South Africa, not only due to the risk of high levels of primary damage to fruit, but also due to potential market implications and increased production and management costs.

### Distribution

*Drosophila suzukii* was first recorded outside of Asia (native range) in Hawaii in 1980, in continental North America (California) and Europe (Italy and Spain) in 2008 after which it spread throughout Europe, North and South America (2013) and northern Africa (2017) (CABI, EPPO).

### Primary host plants

*Drosophila suzukii* infests a wide range of undamaged ripening fruit, usually as skins are softening and sugar levels increase. Susceptible host plants include: peaches, nectarines, plums, apricots, cherries, blueberries, strawberries, raspberries, blackberries and several other wild and cultivated hosts (CABI, EPPO). Differences in the susceptibility of cultivars of the same species of fruit have been recorded (Entling et al. 2019).

### Biology

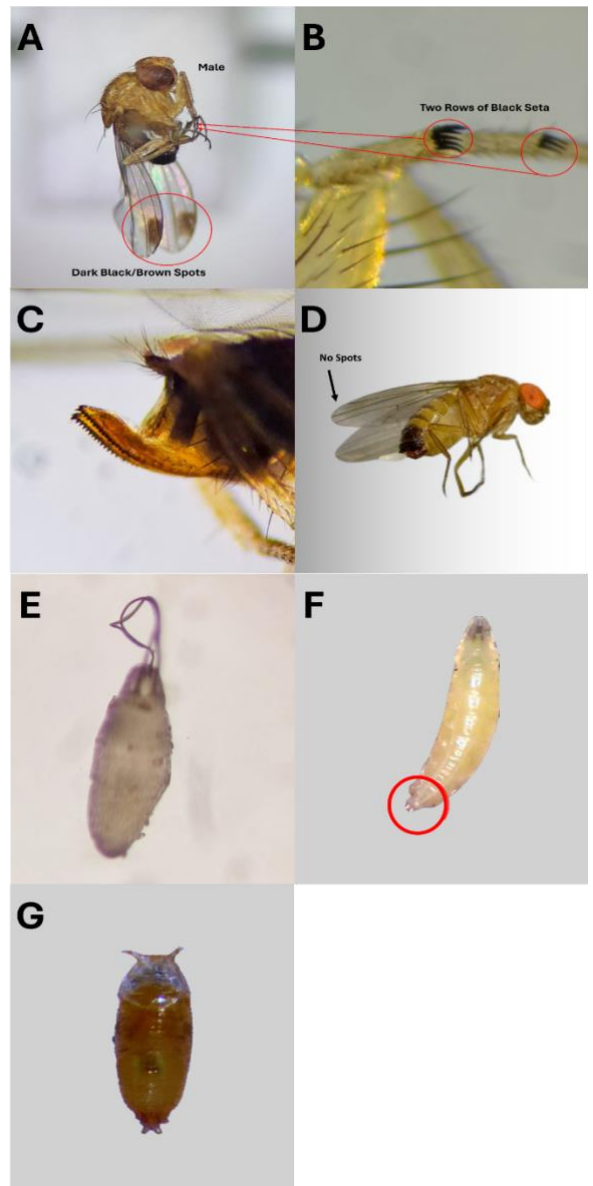
At optimal temperatures SWD can complete its life cycle within 10 – 15 days (20-25°C) (Tochen et al. 2014), resulting in many generations per year and a rapid increase in population numbers.

**Adults:** *Drosophila suzukii* are small (2-4mm) flies, with a yellowish-brown thorax and red eyes. Females are slightly larger than males with a serrated ovipositor (Panel C) and no spots on the wings (Panel D). Only males have a dark spot on the top edge of the wing which develops approximately 24 hours after emergence (Panel A) and has two rows of black hairs on front legs (Panel B).

**Eggs:** Small (0.4-0.6mm), white and oval with 2 filaments at one end (Panel E).

**Larvae:** White with three larval instars, and posterior spiracles in the last instar (Panel F). Larvae feed on the pulp of fruit, causing decay.

**Pupae:** Brown, with two projections at one end. Pupation can take place in the fruit and in the soil (Panel G).



Photos: Zion Jodamus, Gulu Bekker

### **Management options**

An integrated management strategy is recommended. The implementation of any management practices should be based on fruit sampling and monitoring in orchards using commercial or homemade traps. Limited chemical products are currently registered for SWD in South Africa. Post-harvest mitigation treatments against SWD may be implemented/proposed where it is required between trading partners and could include fumigation and/or cold treatment. See the “**Best Practice Management Guidelines**” for more information.

### **References**

CABI <https://www.cabidigitallibrary.org/doi/full/10.1079/cabicompndium.109283>

Entling, W., Anslinger, S., Jarausch, B., Michl, G. and Hoffmann, C., 2019. Berry skin resistance explains oviposition preferences of *Drosophila suzukii* at the level of grape cultivars and single berries. *Journal of Pest Science*, 92(2), pp.477-484.

EPPO <https://gd.eppo.int/taxon/DROSSU/distribution>

Tochen, S., Dalton, D.T., Wiman, N., Hamm, C., Shearer, P.W. and Walton, V.M., 2014. Temperature-related development and population parameters for *Drosophila suzukii* (Diptera: Drosophilidae) on cherry and blueberry. *Environmental entomology*, 43(2), pp.501-510.