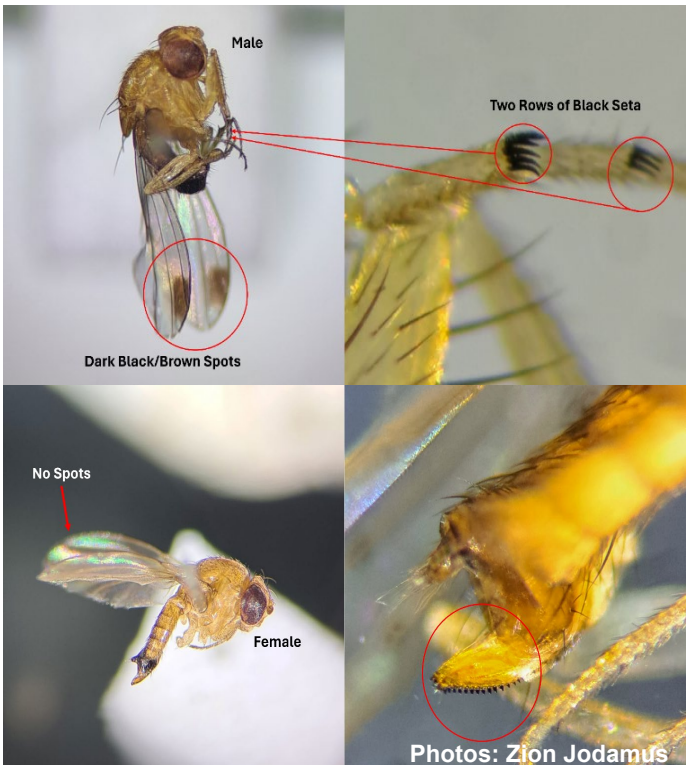
Drosophila suzukii Matsumura – Spotted wing drosophila (SWD)

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 other vinegar flies that only infest fruit secondarily, female SWD can lay eggs in fresh and ripening fruit using a serrated ovipositor (see image). Larvae feed on the pulp causing decay, which can be promoted by secondary infections at the oviposition site. However, 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 potential market implications and increased production costs.



Distribution

Drosophila suzukii was first recorded outside of Asia 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).

Host plants

Drosophila suzukii infests a wide range of undamaged ripening fruit, usually as skins are softening and sugar levels increase (Lee et al. 2016). Susceptible host plants include: peach, nectarine, 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

Drosophila suzukii can overwinter as adults and as hosts become available females can lay up to 195 eggs in a lifetime which will hatch very quickly (1-3 days) (Tochen et al. 2014). At optimal temperatures SWD can complete its life cycle within 7 – 15 days (20-25°C) (Walsh et al. 2011), 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. Males and females display sexual dimorphism with females being slightly larger than males with a serrated ovipositor. Only males have a dark spot on the top edge of the wing (see image).

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

Larvae: White with three larval instars, approximately 5.5mm in the final instar with posterior spiracles.

Pupae: Reddish brown, approximately 3.5mm with two projections at one end. Pupation in fruit and in soil.

Management options

An integrated management strategy is recommended that combines cultural, biological and chemical control. The implementation of any management practices should be based on population monitoring in orchards using traps and fruit sampling. It is important to note that no insecticides are currently registered for SWD in South Africa. Post-harvest mitigation treatments against SWD can be implemented/proposed where it is required between trading partners and will include fumigation and/or cold treatment. See the "**Best Practice Management Guidelines**" for more information.