biobest®

SUSTAINABLE CROP MANAGEMENT

DROSO-TRAP

Biological systems for sustainable crop management!

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TECHNICAL SHEET

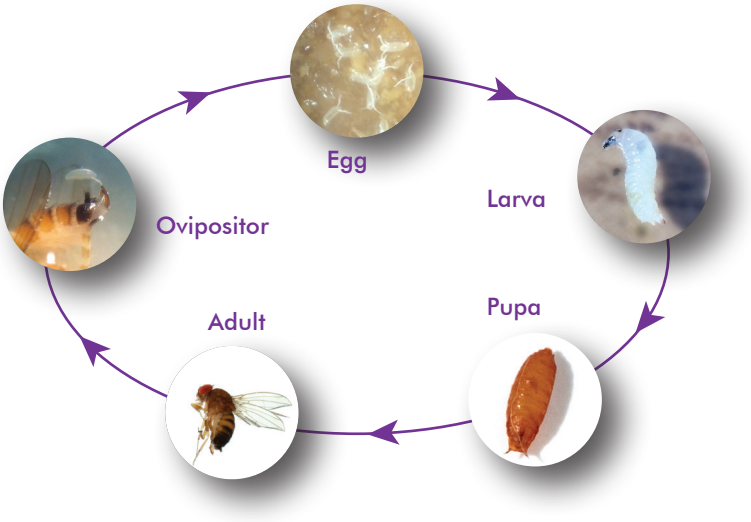
Pest

Drosophila suzukii (spotted-wing *drosophila*) is native to South-East Asia, was described in 1931 by Matsumura in Japan and now has spread to almost all continents of the world.
Until 2013, the actual damage done in the crop usually remained limited and focused in certain areas (Italy, France, Northern Spain) and certain crops (cheries, soft fruits). Due to the mild winter, *Drosophila* has been caught in 2014 earlier and in higher number from Italy to the Benelux, from UK to Switzerland. *Drosophila suzukii* develops especially from spring to fall. In the South of France, it is able to withstand the low winter temperatures, mainly in the form of adults who protect themselves from the cold by staying in the soil. It can live in cultivated areas or on wild species and can develop at an altitude above 1500 m.
Females can lay up to 380 eggs in a period between 7 and 16 days by depositing 2-3 eggs per laying site. After 3 generations, it makes +/- 27 millions of adults!

• **Optimum development temperature: 20 °C,** but it tolerates temperatures from 0 °C to 30 °C. The winter diapause can occur when the temperatures drop below 5 °C and takes place mainly at the adult stage. Due to survival instinct, the females may lay a hundred eggs before the diapause and then, after emerging from hibernation, they may deposit eggs again in the fruit.

Male adult

How to recognize the males?
- black spots on the front legs
- black spots on the wings



Damage

Targets

Fruit trees: cherry, peach, apricot, nectarine, apples (rare, depending on the sort)
Berries: blueberry, blackberry, raspberry, strawberry
Other: fig, table grape, (tomato, pepper), persimmon, kiwi or any other putrefying fruit
Ornamental plants: *Camellia japonica, Styrax japonicus*,...
Wild species: oak, cedar, ….
Drosophila suzukii prefers to attack fruit before it ripens, unlike *Drosophila melanogaster* that lays eggs in overripe or damaged fruit.

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Damage to fruit

The affected fruits show biting marks with rapid local wilting as the larvae develop there and lead to the appearance of secondary parasites such as *Drosophila melanogaster*, grey mould, Rhizopus.
Drosophila melanogaster, called the vinegar fly, can make use of the egg-laying holes of *Drosophila suzukii* to lay its eggs in the fruit or berry. This results in a rapid and widespread wilting of the fruit due to a substantial presence of maggots of the two *Drosophila* species. An efficient fight against *Drosophila suzukii* will allow to eliminate the secondary problems mentioned above.
Crop losses can range from 5% to 100%, depending on the crop and season.

Risk periods

High risk
Medium risk
Low risk
Hibernation

	J	F	M	A	M	J	J	A	S	O	N	D
Risks in Mediterranean countries												
Risk in the countries of Western Europe												

Essential prevention

- Maintain the crop in healthy condition: by removing all wilted or decaying fruit. Do not leave any fruit on the ground! This can be done, for example, by placing a trap on the ground.
  How to dispose of this fruit waste?
  - either burn it,
  - or place it in a sealed transparent plastic bag in direct sunlight (destruction by heat),
  - or bury it at a minimum depth of 50 cm (don't forget that it will overwinter in the ground).
  - **DO NOT COMPOST**
- Maintain the surrounding crops in healthy condition: remove the fruit waste of the neighbouring crops even if they are not sensitive.
  The prevention may be difficult to achieve when the crop is close to other sources of contamination (wild trees, abandoned crops…)
  - Cleaning and disinfection of greenhouses are absolutely essential.
  - Insect-proof nets can contain the infestation, if they are installed very early (6X6 per 1 cm).
  - Increase the harvesting frequency.

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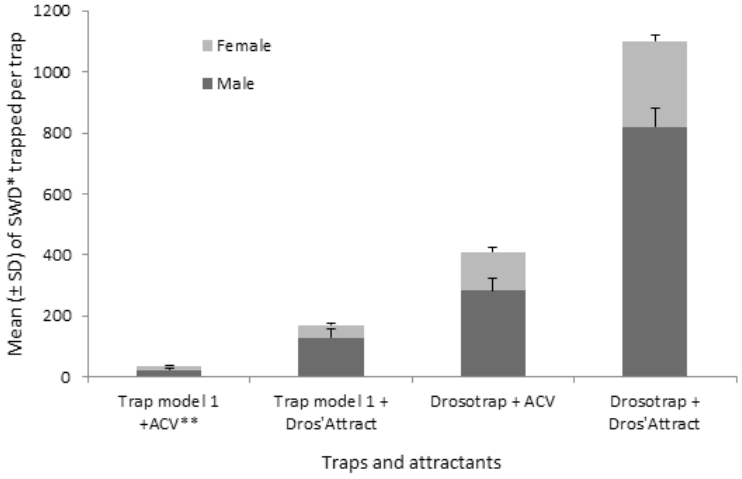
Detection and control methods

Biobest has conducted trials to develop a reliable and selective method of trapping *Drosophila suzukii*. Our **DROSO-TRAP** design has been further optimized: the round bottom and increased number of lateral openings contribute to a better evaporation of our *Drosophila suzukii* attractant, Dros' attract. Recently, the lateral openings have been equipped with a vertical bar, reducing non Drosophilidae catches (mainly big Diptera) significantly without having a negative effect on *D. suzukii* catches. Also the design of the lid has changed to be more practical and fast.

In the below graph you can see the mean number of *Drosophila suzukii* catched per trap for both the old (Trap model 1) and new (Drosotrap) design using 2 different baits (apple cider vinegar and Dros'attract). The new trap design with Dros'attract is by far the best combination against *Drosophila suzukii*.



* SWD = Spotted-wing *Drosophila* ** ACV = Apple cider vinegar

Recommendations for use:

	Detection trapping (for better positioning of the treatment)	Perimeter trapping* (preventive method)
Number of **DROSO-TRAP** per plot	1 to 2 **DROSO-TRAP** /1000 m²	80 to 100 **DROSO-TRAP** /ha

* Recommended in case of high infestation in the previous year

Height for the trap placement: It should be placed at a minimum height of 1 m. If the crop is above 1 m (arboriculture or hydroponics), place the trap at the same level as the crop.

Attractants: DROS'ATTRACT® is the attractant developed by Biobest for use in the Droso-trap.
Put 200 ml DROS' ATTRACT® and a 1 sugar cube of 4-5 gram/Droso-trap and replace it every 2 weeks or once it has been contaminated by *Drosophila suzukii* or other insects. To avoid gluing up because of high temperatures add 3 droplets of dishsoap/detergent per trap.

For any questions regarding the use of DROSO-TRAP, do not hesitate to contact your Biobest technician.

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