

# Evaluation of raspberry and strawberry genetic resources for resistance to spotted-wing drosophila (*Drosophila suzukii*)

Eric Fritzsche, Johanna Pinggera, Dora Pinczinger, Marcel von Reth, Thomas Wöhner, Magda-Viola Hanke, Henryk Flachowsky  
Julius Kühn Institute, Institute for Breeding Research on Fruit Crops, Dresden  
E-mail of corresponding author: eric.fritzsche@julius-kuehn.de

The spotted-wing drosophila (*Drosophila suzukii*), brought in from Asia, is currently considered as the biggest menace for the German cultivation of berry fruits. This drosophila species is ovipositing into almost mature and fully ripe soft-skinned berry fruits, like strawberry, raspberry, blackberry or currant, with her saw-like edged ovipositor. Larvae, developing in infested fruits, are destructing the fabric texture of fruit pulp and are leading to inedible and non-marketable fruits. Damaging the fruit skin with the ovipositor is causing points of entrance for secondary pathogens like fungi and bacteria. Combating *D. suzukii* with insecticides is not possible because of not realizable waiting periods. Currently, covering of total berry fruit plantations with close-meshed nets is the best way to protect the fruits against *Drosophila*. Cultivation of less susceptible cultivars could form a sustained fighting strategy against *D. suzukii*.

Currently, about preferences of *D. suzukii* concerning oviposition into different cultivars within a genus is only little known. This project is investigating oviposition of *D. suzukii* using different cultivars of strawberry and raspberry as a part of choice and no choice tests in a lab. Investigations consist of incubations of ten times three berry fruits of each cultivar with ten female and five male drosophila

flies, each. Incubating conditions were a humidity of 70% and a temperature of 23°C. After a 24h incubation with flies, the fruits were incubating without flies for another five days under the same conditions. After that larvae, developing in infested fruits, were counted. Ingredients, fruit skin firmness and berry color will be investigated to explain the different susceptibility between different cultivars.

The results of testing raspberries show, that in 2016 and 2017 'Dorman Red' is the least infested of totally 34 tested florican raspberries on average. 'Cascade Delight' is the average most infested florican in both years. 'Autumn Best' is most feeble infested and 'Autumn Bliss' is the most infested of 19 tested primocane cultivar in 2016. In 2017, 29 autumn varieties were tested. 'Ruby Fall' shows the slightest and 'Mapema' the strongest infestation. The completely evaluation of raspberries tested in 2018 is still pending. The results of five tested strawberry cultivars reveal, that in 2017 the precocious cultivar 'Darselect' is most feeble infested and the late maturing cultivar 'Malwina' shows the strongest infestation. In 2018 'Mieze Nova' is the least infested and 'Asia' the most infested of 14 tested strawberry cultivar.