

Using the parasitic wasp *Trichopria drosophilae* (Hymenoptera: Diapriidae) for augmentative biocontrol of Spotted Wing Drosophila (*Drosophila suzukii*; Diptera: Drosophilidae) in Germany

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Spotted wing drosophila (SWD) is a pest of soft-skinned fruit (e.g. Berries, Cherries, Grapes) and originates from South East Asia. Recently emerged in Europe, it poses a high threat for producers.

SWD larvae feed on the inside of ripe fruit. Due to the lack of available control methods (except netting of the crop) as well as insufficient presence of effective natural enemies in the production systems, the resulting damage can take up devastating proportions.

In order to avoid potential unforeseen adverse effects of a palpable classical biological control approach (i.e. importation of natural enemies regulating SWD in its centre of origin) a solution based on suitable *spp.* already present in Germany is preferred.

Trichopria drosophilae (TD) is a pupal parasitoid of drosophilids and widely distributed over Europe. Its promising efficacy against DS under laboratory conditions (e.g. Parasitisation rate, successful development, longevity) predestine TD as a

promising candidate for an augmentative biocontrol product to regulate DS.

In order to adapt an experimental small-scale DS breeding program for mass rearing, (1) an economically feasible quality control management for quantification of relevant population variables is currently established, (2) production efficacy will be improved and (3) possible product formulations will be developed. Consecutively, (4) product performance will be assessed and optimised.

In contrast to pupal parasitoids, larval parasitoids potentially allow earlier (thus better) control of DS populations. DS has been reported to be resistant to larval parasitoids of drosophilids endemic to Germany through encapsulation of the parasitoid inside the host.

In order to use endemic larval parasitoids, host resistance needs to be overcome. The feasibility of this approach will be investigated by adaptive breeding of promising strains on DS under laboratory conditions.