

Alternative host plants as potential trap crops in vineyards

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Introduction

Since a decade, the invasive spotted wing *Drosophila suzukii* has rapidly spread worldwide affecting stone fruit, berry and grape production. We aim to explore the potential application of trap crops for diverting *D. suzukii* from damaging grapes. To be efficient, the trap crop should be highly attractive for *D. suzukii* during grape maturation and limit the development success of the pest in order to avoid spillover effects.

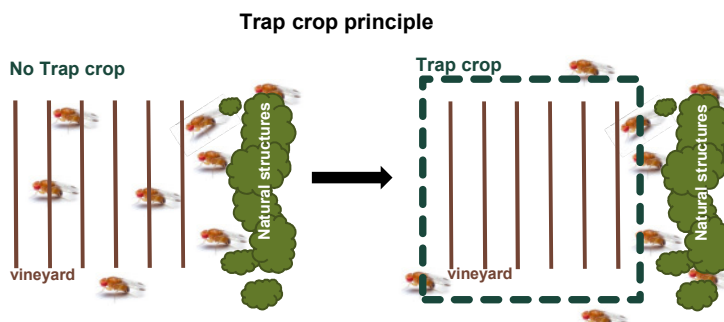


Figure 1: *D. suzukii* dispersal from hedges into vineyard surrounded or not by a trap crop.

Material and Methods



Figure 2: preference experiment

In autumn 2018, 63 plant species were tested under laboratory conditions to identify promising host plant species for trap cropping. Every week preference (Fig. 2) and development (Fig. 3) experiments have been conducted. In both types of tests, fruits were exposed to *D. suzukii* and the number of laid eggs was counted after 24h.



Figure 3: development experiment

Results

Drosophila suzukii's preference was significantly higher for 32 of the alternative hosts tested than for grape and between 0 to 89% of the deposited eggs were able to develop to adults.

Linking attractivity and development success (Fig. 3), we selected *Cestrum fasciculatum*, *Cornus amomum*, *Lonicera xylosteum*, *Prunus lusitanica*, *Rhamnus cathartica* and *Sambucus nigra* since they were highly attractive towards *D. suzukii* but prevented its development.

Perspective

Under semi-field conditions, 6 potential trap crops are currently tested against vines of the susceptible cultivar Mara (Fig.4). Next year, the most interesting species will be tested in the field.



Figure 4: two-choice experimental set up in tents.

Trap species selection

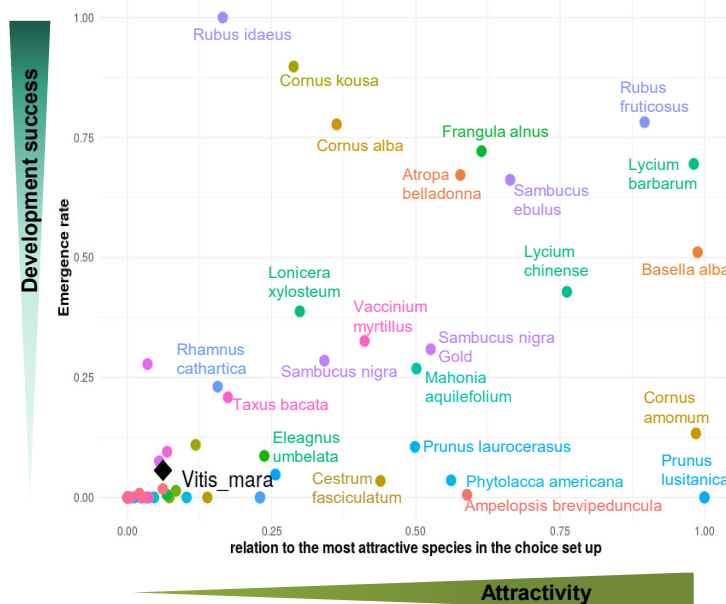


Figure 3: Relation between development success of *D. suzukii* eggs and the relative attractivity of host plant species.

