Alternative host plants as potential trap crops in vineyards

Anne-Laure Fragnière, Klötzli-Estermann Françoise, Sven Bacher & Patrik Kehrli
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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.

Materiel and Methods
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.

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 attractiveness 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.