
Intercropping companion plants in a young apple orchard : does it reduce aphid population and/or favour natural enemies?

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R esum e

In a global context of pesticide reduction, the sustainable management of aphids is a major challenge in order to maintain an economically viable fruit and vegetable production. Intercropping with companion plants (CPs) is one possible strategy, still little studied in orchards. Indeed, some CPs are known to emit volatile organic compounds (VOCs) with repellent or attractive properties in the laboratory but their effects in the orchard to disrupt aphid behaviour or attract natural enemies of pests (NE) are not widely documented. Here we tested the hypotheses that the intercropping of CPs around apple trees could decrease the populations of the rosy apple aphid (RAA) (*Dysaphis plantaginea* Passerini) directly or indirectly by increasing the abundance of its NE. Four CP species (Basil, French marigold, wild fennel, peppermint) and ryegrass as a control were introduced in a young apple orchard (*Malus domestica* Borkhausen, cv Ariane) in the south of France in April 2024. The development dynamics of aphid colonies and the abundance of NE were studied every week on the trees surrounded by CPs or ryegrass from April till the end of June. Every fortnight, the VOCs emitted by CPs were sampled and analyzed. These measurements were aimed to identify the VOC profiles associated with CPs and their potential effect to reduce aphid colony development.

Mots-Cl es: companion plant, apple orchard, repulsion, attraction, *Dysaphis plantaginea*, Volatiles organic compounds

*Intervenant