
Impact of different banker plant systems on the oviposition preferences of the American hoverfly, *Eupeodes americanus*

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Abstract

Assessing the oviposition preferences of hoverflies is essential to predict the success of this biological control agent against aphids in greenhouses, especially when using banker plant systems or for greenhouses with mixed crops. In this study, the oviposition preferences of the American hoverfly, *Eupeodes americanus* Wiedemann, 1830 (Diptera: Syrphidae) were evaluated in choice experiments with different plant/aphid systems. Female oviposition choices were evaluated in two contexts: 1) choice between banker plants and focal crops and 2) choice in mixed crops. The results showed that in cucumber crops, the species of banker plant drastically influences the oviposition preferences of the hoverfly. Barley banker plants were preferred over cucumber, while the opposite was observed for finger millet. Females had no preference between cucumber and corn banker plants. The preference for barley banker plants was not observed in a sweet pepper crop. In mixed crops, the American hoverfly has no preference between cucumber and pepper, which means they should be able to protect both crops. This study shows that the choice of the banker plant system according to the crops/aphids present in the greenhouse greatly affects the female oviposition preferences and consequently the success of a biocontrol program. It also confirms the potential of the American hoverfly as a generalist predator in multiple greenhouse contexts.

Keywords: Aphidophagous hoverfly, Syrphidae, Oviposition behavior, Banker prey, Focal prey

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