

Tölle M.L., Vollhardt I, Mennerich D & Ulber B (2013). Factors affecting the larval parasitism of pollen beetle in Germany. Integrated Control in Oilseed Crops IOBC-WPRS Bulletin vol. 96, 2013, 93.

## **099 - Eignung von *Typhlodromips montdorensis* und *Amblydromalus limonicus* zur Bekämpfung Weißer Fliegen an Weihnachtsternen**

*Suitability of *Typhlodromips montdorensis* and *Amblydromalus limonicus* for whitefly control in poinsettia*

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The parasitoid wasp *Encarsia formosa* is widely used to control whiteflies (*Trialeurodes vaporariorum*) infesting poinsettias (*Euphorbia pulcherrima*) in the greenhouse. However, *E. formosa* has special demands on climatic conditions and is susceptible to pesticide residues on and within plants. Two predatory mite species newly introduced to the market, *Typhlodromips montdorensis* and *Amblydromalus limonicus*, may serve to enhance biological control in poinsettias. Both species show no diapause but require relatively high temperatures of 20 to 30 °C. Both species were tested in comparison with *E. formosa*, a chemical routine and an untreated control in 2012 and 2013. For each treatment a separate greenhouse compartment with 250 poinsettia plants each (cultivar 'Cortez' red) was available. In 2012 three *E. formosa* wasps as well as 60 *A. limonicus* and 40 *T. montdorensis* were released per plant during the growing period. In 2013 it was 3 wasps and 40 mites of each species per plant. Four different registered insecticides were applied at six dates, twice as a tank mixture (MICULA, MOSPILAN, PLENUM, TEPPEKI). The development of the whiteflies and the beneficials was monitored weekly.

Before release, the quality of the beneficials was tested. Instead of using the Berlese procedure, mites were put in a sieve and by knocking the sieve the mites were kicked into a petri dish with alcohol inside and then counted with a binocular. This method was compared to the Berlese procedure before and found suitable for both species. The quality of the mites was varying so that there should be some improvement. To check the quality of *E. formosa*, the hatching rate of the wasps was counted after being two weeks in the greenhouse. Results showed that although hatching rate of *E. formosa* was sometimes below 50%, there were always enough parasitized pupae on the cards to ensure an adequate number of wasps in the greenhouse.

The efficacy of the biological control with beneficials was comparable to the chemical routine. All treatments, the beneficial species *E. formosa*, *T. montdorensis* and *A. limonicus* as well as the chemical routine provided good pest control without significant differences. Both predatory mite species could be found on each plant in the respective greenhouse searching for prey. They may be an addition or even an alternative to *E. formosa* being less susceptible to inappropriate weather conditions.

The direct influence of the mites on the whitefly population was tested in cages with whitefly nymphs as prey. Therefore, one leaf infested with larvae was put into a small test tube with water and then together with 3 mites into a plastic box. There were 5 replicates per mite species and an untreated control. Natural mortality of the whiteflies in the untreated control was in total 26% whereas mortality in cages together with *A. limonicus* was 58% and with *T. montdorensis* 71% which means that each mite killed about 6 whitefly larvae during this test. Females of both mite species laid in mean one egg and from some eggs larvae hatched but could not fully develop to adult mites.