

Some basic ideas for the management of the citrus mealybug by mass trapping of males

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Abstract

The present study assessed the efficacy of mass trapping of males against the citrus mealybug, *Planococcus citri* (Hemiptera: Pseudococcidae), in Navel orange in Portugal and two grapefruit varieties in Israel. It was thought that a "male vacuum" in the citrus mealybug population in the spring, when the latter is still at a low density, would result in delaying the population build-up until the recovery of the natural enemies in mid-summer. In order to test this idea, we have examined the effect of mass-trapping in treated- and non-treated plots. In the first year (2000), we studied the density of the mealybugs on the fruits in small subplots isolated by insecticide treatment on the surrounding trees in the plot. In the second year (2001), we examined the effect of mass-trapping on the reduction of mating by exposing potato sprouts infested with virgin females in the orchards, and that on male captures in small size delta traps. For the mass-trapping, we used 30x30cm-plate traps covered with non-drying glue on both surfaces, baited with rubber dispenser impregnated with 200 µg pheromone. In our previous studies, this type of trap had provided the highest male captures among several tested trap designs.

The results obtained in 2000 showed no significant reduction in the mealybug density on fruits in the treated plots compared with the non-treated ones. The results can be ascribed probably to the ineffective isolation of the plots as well as to the large flight range of the males.

In 2001, the number of males caught in treated plots was markedly lower than that in the control plots. In Portugal, the mass-trapping was carried out from April to July. In April, when the mealybug density was still low, the percentage of mated females was higher than that in the non-treated plots but did not significantly differ from it. In June-July, a significant reduction of the percentage of mated females was observed in the treated plots. In Israel, where due to technical problems the traps could not be exposed before mid June, when the male flight was already high, the reduction of the percentage of mated females in the treated plots was insignificant.

The results suggest that a significant reduction of males in the treated plots can be achieved by mass trapping. Further improvements are needed with the emphasis on:

- (1) small isolated or much larger plots to be used in order to prove the efficacy of the method;
- (2) mass trapping to be applied early in the season before the beginning of the male flight;
- (3) the fact that early in the season, when male population is usually low, the attraction of males to the edge of the orchard may bring about a "male vacuum" inside the plot.