

## EXPOSURE OF STERILE MALES TO GINGER ROOT OIL REDUCES MATING IN WILD *CERATITIS CAPITATA* FEMALES (DIPTERA: TEPHRITIDAE).

Morelli, Renata<sup>1</sup>; Paranhos, Beatriz J\*<sup>2</sup>; Coelho, Mello A<sup>3</sup>; Castro, Rosimary<sup>2</sup>; Garziera, Luiza<sup>2</sup>; Lopes, Fabiana<sup>2</sup> & Bento, Jose Mauricio S<sup>1</sup>

<sup>1</sup>University of São Paulo, ESALQ, Department of Entomology and Acarology, C.P. 9, 13418-900 Piracicaba-SP, Brazil. E-mail: jmsbento@esalq.usp.br; <sup>2</sup>Embrapa Semi Arid, Laboratory of Entomology, Petrolina-PE, Brazil; <sup>3</sup>University of São Paulo, ESALQ, Department of Exact Sciences, Piracicaba-SP, Brazil.

**Background:** Females of *Ceratitidis capitata* are facultatively polyandrous, with remating more common in laboratory strains rather than wild ones. In the application of the Sterile Insect Technique (SIT) against this pest, large overflooding ratios of sterile: wild males can increase the remating frequency, because females that mate for the first time with a sterile male tend to remate more frequently. The exposure of sterile males to ginger root oil (GRO) is used in *C. capitata* SIT programmes to increase the sterile male's mating success. Exposing males to an aromatherapy with GRO results in greater competitiveness of sterile males when competing for wild females, and this may also increase the remating frequency among wild females.

**Methods:** This work examined, under greatly male biased sex ratios, whether sterile male exposure to GRO has an effect on the remating behavior of wild females. The frequency of wild females remating, number of matings per female, the refractory period between the first and second mating, and the duration of the first and second matings of wild females were determined under laboratory conditions for three mating scenarios that included wild males only or wild males competing with sterile males (either GRO-treated or non-treated).

**Results:** Wild females first mated with sterile males exposed to GRO had their remating rate over six days and the mean number of matings per female reduced in comparison to those first mated with non-exposed sterile males, from 62.5% to 31.1% and from 3.1 to 1.6, respectively.

**Conclusion:** The remating parameters of females mated with sterile GRO-exposed males resembled those of females mated with wild males.

**Keywords:** *Ceratitidis capitata*, female receptivity, sterile insect technique,  $\alpha$ -copaene