



Biological control, according to an IPM system, of western flower thrips *Frankliniella occidentalis* on rose under greenhouse conditions in Liguria Region, Italy

Francesca Clematis, Boeri Gianluca, Salvo Fascella, Benedetta Cangelosi, Carlo Pasini, Paolo Curir

CRA – FSO Unità di Ricerca per la floricoltura e le specie ornamentali - Corso Inglese 508 – 18038Sanremo (IM),Italy. E-mail: francesca.clematis@entecra.it

Abstract

Chemical insecticides have long been relied on to reduce thrips in roses. However, continued use of these pesticides may both cause the development of insect resistance and increase social and environmental concerns over chemical residues on the plants. Evaluation of biological and eco - friendly products to control thrips should be carried out. With this aim, greenhouse trials were performed on roses (cv *Pretty woman*) growing in a soilless system at CRA-FSO during two years (2009-2010). Five different biological and natural pest controls were applied weekly in combination or not, for seven times on flowers and into the soilless substrates (only in trial 2009): *Steinernema feltiae*, *Beauveria bassiana* ATCC 74040, Azadiractine, pyrethrins, Spinosad. Roses were monitored once per months to check for thrips infestations. The experimental design was planned according to a randomized block design with four replicates, for a total of 24 experimental subplots. Results showed that treatments with Spinosad, a natural pesticide, and Azadiractine in combination with pyrethrins provided the lowest thrips infestations both in 2009 and 2010 for all the duration of trials. With respect to biological pest controls, application of *S. feltiae* (year 2009 and 2010) and *B. bassiana* ATCC 74040 (year 2009) did result in significant lower thrips populations, 4 week and 8 weeks after treatments, respectively. *B. bassiana* ATCC 74040 in combination with Azadiractine showed more significant decrease of thrips infestation than when it was applied alone (year 2010). Moreover results recorded with *B. bassiana* trials could be basically comparable to those obtained with Azadiractine in combination with pyrethrins. Delivering of *B. bassiana* ATCC 74040 into soilless substrates had no significant impact on Trips populations.

The use of Spinosad and Azadiractine associated to pyrethrins and the microorganisms assayed may represent an effective alternative to conventional insecticides for the IPM of *F. occidentalis* on roses in greenhouse conditions.