



## SHORT NOTE

### Management of spiraling whitefly, *Aleurodicus dispersus* (Russel) in guava, *Psidium guajava* L.

GUNDAPPA\*, P. D. KAMALA JAYANTHI<sup>1</sup> and ABRAHAM VERGHESE<sup>2</sup>

<sup>1</sup>Division of Entomology and Nematology, Indian Institute of Horticultural Research, Hesseraghatta Lake PO, Bangalore - 560089, India

<sup>2</sup>National Bureau of Agricultural Importance, Bellary Road, Bengaluru - 560 024

\*Central Institute for Subtropical Horticulture, Rehmankhara, P.O. Kakori, Lucknow - 226 106, India

E-mail : gundappacish@gmail.com

The spiraling whitefly (SWF), *Aleurodicus dispersus* (Russel) is a polyphagous pest with a characteristic spiraling pattern of oviposition on the underside of leaves. The pest is native to Central America, the Caribbean region and the Pacific islands. It was first observed in Florida in 1957 (Russel, 1965) and was reported in Hawaii on the Oahu island in 1978 (Paulson and Kumashiro, 1985). Since then it started to spread rapidly to most tropical regions of the world. It was reported from India in 1993 from Kerala (Palaniswami *et al.*, 1995) and later from other parts of peninsular India (Reddy and Chandurkar, 1999). Spiraling whitefly has extensive host range covering 481 plants belonging to 295 genera from 90 families of vegetables, fruits and ornamentals trees (Srinivasa, 2000). Important hosts reported so far are citrus, avocado, guava, plantain, banana, coconut, soybeans, cassava and stone fruit (John *et al.*, 2007). It damages plants by sucking the sap of leaves and excreting a sticky honeydew and white waxy flocculent substance which affects the photosynthesis and overall appearance of the plants (Mani and Krishnamoorthy, 1999; Chien *et al.*, 2002). A loss of 80 per cent in fruit yield has been recorded in guava attacked by the pest in four continuous months in Taiwan (Wen *et al.*, 1995). The management options for *A. dispersus* include cultural, biological and chemical methods. Of these, the chemical control is recommended to reduce the whitefly populations during sensitive crop growth stages to minimize the yield losses. Some chemicals such as tobacco extract (4%), neem oil (2%), fish oil rosin soap (4%) and detergent soap solution (5%), malathion (0.1%) and carbaryl (0.1%), dichlorvos (0.08%), triazophos (0.08%) were found to be effective in suppressing the nymphal and adult whitefly population (Ragumoorthy and Kempuraj, 1996; Ranjith *et al.*, 1996; Asia Mariam, 1999; Muralikrishna, 1999; Geetha, 2000; Mallapanavar, 2000). Earlier,  $\lambda$ -cyhalothrin has been found effective against pupae and adults of *A. dispersus* (Yao *et al.*, 2008).

However, guava being frequently harvested crop, application of chemical insecticides may warrant sufficient waiting periods that are otherwise not observed by many growers. The present investigation was carried out to find out the best options to bring down the populations of *A. dispersus* with eco-friendly botanical formulations.

The study was conducted at the experimental farm of the Indian Institute of Horticultural Research, Hesseraghatta (12° 58' N; 77° 35' E), Bangalore on 25 years old trees of guava (cv. Allahabad Safeda) during December 2012. Treatments viz., triazophos at 1.5 mL/L, neem soap at 10 g/L, neem guard at 5g/L,  $\lambda$ -cyhalothrin at 0.5 mL/L, dichlorvos at 1 mL/L, pongamia oil (PO) at 10g/L, dichlorvos + PO, pongamia soap at 10 g/L and water spray were evaluated against spiraling whitefly *A. dispersus* along with untreated check. Guava trees infested with whiteflies were selected for administering the treatments. Ten leaves were randomly collected from each treated tree and each leaf is served as replication. The detached leaves were carefully kept in polythene covers and tied with rubber band to prevent any escape of whiteflies. The polythene covers were brought to laboratory and observations on number of eggs, nymphs, pupae and adults per leaf were recorded under stereo microscope. Post-treatment observations were recorded at 24 h, 48 h, 96 h, 7 days, 14 days and 21 days after spraying (DAS). Data were subjected to ANOVA using 'F' test criteria at  $p=0.05$  level.

The results pertaining to the management of spiraling whiteflies on guava using botanicals and insecticides are given in the Fig 1. At 24 hr after the spray neem guard, neem soap, Dichlorvos with Pongamia oil was found to be superior in reducing the pupal population significantly ( $F= 3.05$ ;  $df=9$ ;  $p<0.003$ ) compare to the other treatments. Whereas, after 48 hr of post treatment reduction in nymphal ( $F = 3.42$ ;  $df=9$ ;  $p<0.001$ ), pupal