

Post-Application Effects of Selected Management Strategies to the Citrus Nematode (*Tylenchulus semipenetrans*) Population Densities

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Abstract : 'Inconsistent results' in nematode suppression post-application of botanical-based products created credibility concerns. Relative to untreated control, sampling for nematodes post-application of botanical-based products suggested significant increases in nematode population densities. 'Inconsistent results' were confirmed in *Tylenchulus semipenetrans* on Citrus jambhiri seedlings when sampling was carried out at 120 days post-application of a granular Nemarioc-AG phytonematicide. The objective of this study was to determine post-application effects of untreated control, Nemarioc-AG phytonematicide and aldicarb to *T. semipenetrans* population densities on *C. jambhiri* seedlings. Two hundred and ten seedlings were each inoculated with 10000 *T. semipenetrans* eggs and second-stage juveniles (J2) in plastic pots containing 2700 ml growing mixture. A week after inoculation, seedlings were equally split and subjected to once-off treatment of 2 g aldicarb, 2 g Nemarioc-AG phytonematicide and untreated control. Five seedlings from each group were randomly placed on greenhouse benches to serve as a sampling block, with a total of 14 blocks. The entire block was sampled weekly and assessed for final nematode population density (Pf). After the final assessment, post-regression of untreated Pf to increasing sampling intervals exhibited positive quadratic relations, with the model explaining 90% associations, with optimum Pf of 13804 eggs and J2 at six weeks post-application. In contrast, treated Pf and increasing sampling interval exhibited negative quadratic relations, with the model explaining 95% and 92% associations in phytonematicide and aldicarb, respectively. In the phytonematicide, Pf was 974 eggs and J2, whereas that in aldicarb was 2205 eggs and J2 at six weeks. In conclusion, temporal cyclic nematode population growth provided an empirically-based explanation of 'inconsistent results' in nematode suppression post-application of the two nematode management strategies.

Keywords : nematode management, residual effect, slow decline of citrus, the citrus nematode

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