Searching for an Ally: Investigating the Effects of Thiamethoxam on Podisus maculiventris for Possible Integrated Pest Management, Year Three

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n 2001, thiamethoxam, a second-generation neonicotinoid, was brought onto the insecticide market. Very few studies have been conducted on thiamethoxam for the purpose of integrated pest management with biological control agents. For two years, this research focused on Euplectruscomstockii, a parasitoid, as a biological control agent to use with thiamethoxam. In the end it was determined that the parasitic wasp, like the honey bee, was extremely sensitive to the neonicotinoid. In this third-year study, the effects of thiamethoxam on Podisusmaculiventris, commonly known as the spinedsoldier bug, was studied. Podisusmaculiventris is a predatory beneficial that may be a potential biological agent to use with thiamethoxam. The purpose of this study was two-fold: First, to observe the effects of thiamethoxam on the development of Podisusmaculiventris when administered to third instars in water through multiple pulse doses and second, to observe the egg-laying and hatch of the treated and untreated Podisusmaculiventris. To conduct this study, seventy third-instar spined soldier bugs were placed into one of five treatment groups: 10,000 ppm, 1,000ppm, 100 ppm, positive control, and negative control. The insects were exposed to the thiamethoxam through five pulse doses during development. The effects of the thiamethoxam on survival, development and fecundity were observed over a six-week time period. The following conclusions may be drawn: 1. The initial hypothesis was supported. 2. The mortality did not increase as thiamethoxam concentrations increased rejecting the second hypothesis. 3. The third hypothesis was rejected. These results suggest that Podisus maculiventris should be considered as a possible biological control agent with thiamethoxam for IPM.

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Fourth Award of $500