

# LABORATORY AND FIELD EVALUATIONS OF AN IMIDACLOPRID BAIT AGAINST GERMAN COCKROACHES (DICTYOPTERA: BLATTELLIDAE)

MARLA J. TANLEY AND ARTHUR G. APPEL

Department of Entomology, 301 Funchess Hall, Auburn University, Alabama 36849-5413 USA

An experimental 2.15% imidacloprid-based gel bait containing  $\approx 44\%$  water was evaluated in laboratory and field studies against the German cockroach, *Blattella germanica* (L.). In continuous exposure tests, toxicity and presumably bait consumption varied with cockroach stage, deprivation of competitive food, and temperature.  $LT_{50}$ s for cockroaches provided no competitive food ranged from  $\approx 1.7$  h for adult females to  $\approx 31$  h for adult males.  $LT_{50}$ s for cockroaches provided competitive food ranged from  $\approx 0.9$  h for adult females to 190 h for small nymphs. Bait toxicity increased exponentially with temperature between 10 and 30°C. Most (90%) gravid females exposed to bait were killed within 24 h, however there was no effect on eventual hatch of attached oothecae or number of first instar nymphs. Repellency and potential for effectiveness of the bait were evaluated in Ebeling choice boxes. Even though the bait was significantly more repellent ( $\approx 38\%$ ) than the untreated control ( $\approx 14\%$ ), the bait had positive potential for effectiveness, or performance index (PI) values of  $>90$  (on a scale of -100 to 100) after 14 d. In field trials in heavily infested single family dwellings, 30 g of bait applied throughout the kitchen reduced German cockroach trap catch an average of  $\approx 50\%$  within 1 week and  $\gg 80\%$  after 4 weeks. The bait significantly reduced German cockroach trap catch in infested homes during a 4 week period. This imidacloprid gel bait can significantly reduce German cockroach populations when properly applied.