

# REPELLENCY OF MOVING AIR TO COCKROACHES (DICTYOPTERA: BLATTELLIDAE AND BLATTIDAE): A NONCHEMICAL IPM TACTIC

ARTHUR G. APPEL, LANE M. SMITH II, AND DONALD A. OSWALT

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

A modified Ebeling choice box was designed to evaluate the repellency of moving ambient air to American, *Periplaneta americana* (L.), German, *Blattella germanica* (L.), and smokybrown, *Periplaneta fuliginosa* (Serville), cockroaches using air velocities of 0 - 4.75 m/s. The modified choice box tested the repellency of moving air relative to that of light. All stages (adult male, adult gravid and nongravid female, and small/medium and large nymphs) of German cockroaches were significantly repelled by air velocities >2.0 m/s, and percentage of repellency increased linearly with air velocity between 0.75 and 4.0 m/s. All measured stages (adult female and male, and medium and large nymphs) of American and smokybrown cockroaches were significantly repelled by air velocities >4.0 m/s. Percentage of repellency increased exponentially with air velocity for American, but increased linearly for smokybrown cockroaches. Differences in response to air velocity may help explain the absence of German and smokybrown cockroaches from sewerage systems. Male American and German cockroaches detect moving air with mechanoreceptors located on their antennae; air is also detected by the cerci in American cockroaches. Application of moving air in simulated kitchen cabinets changed significantly the distribution pattern of mixed-stage groups of German cockroaches. Moving air may be useful as a noninsecticidal tactic in an integrated pest management system for American, German, and smokybrown cockroach control.