

TOXICITY AND SECONDARY KILL EFFECTS OF FIPRONIL ON THE
GERMAN COCKROACH, *BLATTELLA GERMANICA* (L.)
(DICTYOPTERA, BLATTELLIDAE)

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Secondary mortality occurs when foragers (e.g., adult males and females) feed on or contact an insecticide, return to the aggregation, and translocate the insecticide to the shelter and its vicinity. Relatively more sedentary stages of the population then contact or eat the translocated insecticide and die. Fipronil, a phenylpyrazole insecticide, was evaluated on an insecticide-susceptible population of the German cockroach, *Blattella germanica*, for its potential to cause secondary mortality. We evaluated three different insecticide delivery methods for their potential to cause secondary mortality in various developmental stages of the German cockroach. When topically applied to adults, fipronil resulted in low mortality in untreated nymphs and no mortality in untreated adults within the same aggregation. Delivery of fipronil to adults through contact with treated surfaces resulted in greater translocation of the insecticide, but only early instars were affected and no adult mortality was observed. Using a variety of experimental designs we also evaluated the oral (ingestion of bait) insecticide delivery method for its potential to effect secondary kill. Our results indicate that ingestion of bait results in the highest level of secondary mortality, including significant mortality in untreated adults. Factors that affect the horizontal transfer of fipronil and secondary mortality will be discussed in comparison to other fast-acting insecticides.