

# LABORATORY EVALUATION OF NOVIFLUMURON: IMPACT ON SURVIVAL AND FEEDING RESPONSE OF THE DESERT SUBTERRANEAN TERMITE

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Noviflumuron, the proposed name for a benzoylphenyl urea (BPU) being investigated by Dow AgroSciences LLC, was evaluated in the laboratory for its ability to control the Desert subterranean termite (*Heterotermes aureus*), a major termite pest in the southwestern US. In a 4-week paired choice test, exposure to 0.25% or 0.5% (w/w) noviflumuron on filter paper disks resulted in statistically greater mortality compared with 0.5% hexaflumuron (active ingredient in Recruit\* II termite bait) or acetone controls. Noviflumuron at 0.125% resulted in slightly higher mortality than 0.5% hexaflumuron during the 4-week exposure period.

In the paired choice assay, noviflumuron exposure resulted in a reduction in the total amount of paper consumed (BPU-treated and acetone-treated) by *H. aureus*. Total paper consumption after exposure to 0.125, 0.25, and 0.5% noviflumuron was significantly less than that associated with hexaflumuron or solvent-only exposure. Hexaflumuron exposure resulted in no significant difference in total paper consumption when compared to untreated and acetone-treated controls.

By using continuous exposure forced feeding trials, the lethal time and lethal concentration parameters were established for both compounds. Noviflumuron (0.5%) exhibited a much lower  $LT_{50}$  than 0.5% hexaflumuron. Noviflumuron also possesses a much lower  $LC_{50}$  than hexaflumuron. Collectively, these results indicate noviflumuron is extremely effective at controlling *H. aureus*, being both faster acting and more potent than hexaflumuron. As a consequence, it is likely that less noviflumuron-treated bait consumption, at a lower concentration of active ingredient, is necessary to achieve superior *H. aureus* control, relative to hexaflumuron treated baits. This presents an opportunity for significantly enhancing the performance of the Sentricon® *Termite Colony Elimination System* for protecting structures from *H. aureus* attack.

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