

MOVEMENT OF IMIDACLOPRID IN COLONIES OF THE WESTERN SUBTERRANEAN TERMITE

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Since the phase-out of the use of organophosphate materials for use in subterranean termite control, the pest control industry has been relying increasingly on the pyrethroid insecticides as well as the relatively recently introduced class of compound known as the nicotinyls. Imidacloprid (Premise[®]) is one such insecticide. In early trials using this compound in barrier applications it was noted that Imidacloprid seemed to have a more area-wide effect on termite colonies instead of just at the area of application. If this is true, then either termites which come into contact with the material are able to pick up a dose of the chemical and distribute it to other colony members.

Using ¹⁴C labeled Imidacloprid, we have been able to quantify the various modes of potential transfer. Testing at several different concentrations (50, 100, and 500 ppm) we have detected transfers of potentially lethal doses of insecticide from termites exposed to a residue to those which were not, particularly when initial exposure concentrations were high. Availability of the active ingredient seems dependent on the material to which it was applied. Our studies have shown that Imidacloprid is much more available to the insects when applied to soil as opposed to wood or paper. The majority of the movement of the active ingredient appears to be by contact. Movement by trophallaxis, cannibalism, or coprophagy is in most cases insignificant. Termites exposed to all concentrations of Imidacloprid display significantly reduced activity.