

FIELD EVALUATION OF LOCALIZED TREATMENTS FOR CONTROL OF WESTERN DRYWOOD TERMITE, *Incisitermes minor* (HAGEN) IN CALIFORNIA

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Field studies were conducted using aqueous formulations of spinosad, disodium octaborate tetrahydrate (DOT) and aerosol chlorpyrifos to assess efficacy in controlling the western drywood termite, *Incisitermes minor* (Hagen). Suspensions included two spinosad (Dow AgroSciences, Zionsville, IN) concentrations of 2,300 (NAF-371) or 5,000 (NAF-85) ppm, disodium octaborate tetrahydrate (DOT) at 100,000 ppm (TIM-BOR, U.S. Borax, Valencia, CA) and aerosol chlorpyrifos at 5,000 ppm (PT-270, Whitmire, St. Louis, MO). The field site was a 30 year old, cedar-sided wooden complex containing 981 apartments in southern California. Drywood termite infestations were identified using a portable acoustic emission (AE) device (Locator™ Insect Detection Device, Dow AgroSciences, Zionsville, IN). Sensors were attached to boards nondestructively with an adhesive clay-like material. Boards with AE readings of 5 counts or greater per 30 seconds were considered active for drywood termites and were included in the study. Sensor positions were moved approximately 45 cm down infested boards for their entire length. Boards active with drywood termites were treated with one of four chemicals (two spinosad, DOT, chlorpyrifos) or untreated check. All treatments were randomly assigned. Active galleries in infested boards were intersected by drilling 2.4 mm diameter holes, spaced 45 cm apart. Less than 20% of the drilled holes intersected the galleries, based on amounts of chemicals injected per hole. All holes were later plugged with a small wooden dowel. A total of fifty infestations were included in the study, 10 for each chemical treatment plus 10 untreated checks. At the 1-month post-treatment, all treatments had reduced total AE counts by at least 90%, with the greatest reduction for the spinosad (NAF-371) and chlorpyrifos (PT-270) treatments. At 2, 3, and 6-month post-treatment both spinosad formulations (NAF-85 and NAF-371) resulted in lower AE counts than DOT and chlorpyrifos treatments. At the 12-month post-treatment, NAF-85 provided >95% reduction in pre-treatment AE counts, NAF-371 provided >90% reduction in AE counts, while DOT and chlorpyrifos had ~65% reduction in AE counts. Laboratory dissections of treated boards collected from the field site, supported the AE counts and reduced number of live termites. The advantages and disadvantages for the local detection and treatment of drywood termites are discussed.