CHEMICAL CONTROL OF *CULEX PIPIENS QUINQUEFASCIATUS* IN SWINE WASTE LAGOONS

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ABSTRACT

The effectiveness for mosquito control (*Culex pipiens quinquefasciatus*) in swine waste in drums (55-gal) and in farm scale lagoons was determined for the insect growth regulators Altosid® and Dimilin® and for the insecticides malathion, chlorpyrifos, Abate® and Flit MLO®. Weekly, COD (chemical oxygen demand) and TOC (total organic carbon) measurements were made in the drum tests and there was no evidence of interference with the normal swine waste degradation processes by the treatments with insecticides and insect growth regulators. No abnormal effects on the farm lagoons were observed in the course of these chemical treatments.

The results of the 5 drum tests were as follows. Dimilin at 0.1 lb/A gave complete mosquito control for 12 days and about 50% control after an estimated 16 days. At 0.03 lb/A, Dimilin gave partial control (80%) for up to 5 days and was 50% effective for about 7 days. Altosid SR-10 at 0.1 lb/A was about equal in effectiveness to the Dimilin at 0.03 lb/A. The 20% slow release formulation of Altosid also gave partial control for up to 5 days but retained its effectiveness slightly longer (50% control after about 15 days) than the SR-10 formulation. Malathion at 1.0 lb/A gave complete control for 8 days and about 50% control after an estimated 10 days. Flit MLO gave essentially complete control for 8 days and then quickly lost any effectiveness. Chlorpyrifos at 0.1 lb/A gave the most long-lasting effectiveness with 100% control for 29 days; a few mosquito larvae were found at 35 days posttreatment.

The results of the 4 tests in farm swine waste lagoons were as follows: Dimilin at 0.1 lb/A gave nearly complete mosquito control for 14 days and was 50% effective after an estimated 20 days; at 0.06 lb/A the control was less and at 0.03 lb/A very poor control was obtained. Altosid SR-10 gave partial control (81%) for 4 days and was 50% effective after an estimated 10 days; at 0.2 lb/A the control was poor. The Altosid 20F formulation at 0.5 lb/A gave partial control (80%) for 7 days and was 50% effective after an estimated 16 days; at 0.25 and 0.1 lb/A there was essentially no control at 7 days posttreatment. Malathion at 1.0 lb/A was nearly 100%

effective for 7 days and gave 50% control for an estimated 15 days. Abate at 0.5 lb/A gave complete control for 14 days and 50% control for an estimated 18 days while at 0.3 lb/A it was totally effective for 7 days and 50% effective for an estimated 10 days. Flit MLO at 7 and 5 gal/A gave nearly complete control for 7 days and then rapidly lost its effectiveness. Chlorpyrifos was the most long-lasting control agent giving essentially 100% control for 35 days at the 1.0 lb/A rate and for 28 days at the 0.5 and 0.4 lb/A rates (which still gave high levels of control after 35 days). Control by chlorpyrifos was less at lower rates with 0.2 lb/A giving 100% control for 14 days and 54% control after 21 days while the 0.1 and 0.05 lb/A rates were effective for 7 days.