

A study of sprayer use technology

Abstract:

The purpose of this project is to test the efficacy of commercial product insecticides to the mosquito control, and to study the relationships between sprayers nozzle, pressure (power), flow rate and droplet size, in order to confirm the sprayer use technology and to establish the standard operation procedure of Dengue fever vector control. Tested Aedes aegypti Tainan strains were obtained from CDC laboratory colony and were treated with 22 commercial product insecticides by Spray tower method resulted that each product shows high mortality and the most appropriate droplet size located from 20 to 50 μ m to the mosquito control. Oil formulation is suitable for space spray, while suspension is suitable for residue spray. 31 sprayers flow rate and pressure (power) were assayed and the droplet size were analyzed by Sizing master to evaluate its stability and nebulization. There were significant difference ($P < 0.05$) between actual measurement and registered data. Sprayers flow rate, pressure (power) and nozzle pattern can influence the droplet size, and in Hand pressured sprayers they showed negative regressions while in Fog, ULV and Power sprayers they showed positive regressions. Fog and ULV sprayers have the best stability and nebulization; others require precision adjustment to achieve the best quality of space spray.

Keyword: droplet size 、 flow rate 、 sprayer 、 Aedes aegypti