

ANALYSIS OF THE EFFECT OF SPRAY APPLICATION PARAMETERS ON SPRAY DEPOSITION IN ORCHARD TREE CANOPIES

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ABSTRACT

Scientific studies were carried out to analyze the relationship of spray application parameters namely; sprayer ground speed, acceleration (due to gravity) spray mass flux and tree characteristics such as tree height, canopy diameter on spray deposition in orchard tree canopies. Result showed that, Deposition increases from 0.171-0.199 (mg/cm^2) with an increase in sprayer speed from 0.8km/hr-2.4km/hr. The maximum deposition was obtained at 0.199 with a sprayer speed of 8.0km/hr at canopy diameter of 6.5m, spray mass flux of $6.9\text{kg}/\text{m}^2\text{s}$ respectively. Canopy diameter did affect the predicted deposition. The regression analysis as obtained an excellent relationship with the coefficient of determination for spray mass flux, canopy diameter, tree height and sprayer speed as 0.87, 0.99, 0.99, and 0.98 respectively.

KEYWORDS: Sprayer, Spray Mass Flux, Height & Canopy Diameter