



Department of

Horticulture

WASHINGTON STATE UNIVERSITY

Department of Horticulture Seminar Series

HORT 509/510

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Thursdays, 2:50-3:40 pm

Presented at the following WSU campuses and Research and Extension Centers: Pullman, Tri-Cities, Mount. Vernon, Prosser, Puyallup, Wenatchee

“Evaluation of sprayer technologies utilized in eastern Washington *Vitis vinifera* vineyards”

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Abstract

Grape growers in Washington use multiple sprayer technologies for plant protection, so 2 sprayer evaluation trials were conducted to obtain this information. The first trial focused on airblast sprayer optimization by adjusting nozzle type and air assistance. Optimization was assessed by canopy deposition and drift data collection based on nozzle type, one-piece or air-induction (AI) hollow cone, and air assistance on(+) or off(-) during applications. For the total spray collected, one-piece(+air) had an average canopy deposition of 95.1% and 96.3%, and drift of 4.8% and 3.7%, at early and mid-season, respectively. One-piece(-air) had an average canopy deposition of 99.4% and 99.7% and drift of 0.6% and 0.3% at early and mid-season, respectively. AI(+air) had an average canopy deposition of 94.8% and 91.0%, and drift of 5.2% and 9.0%, at early and mid-season, respectively. AI(-air) had an average canopy deposition of 92.6% and 99.9%, and drift of 7.4% and 0.1%, at early and mid-season, respectively. The second trial evaluated spray deposition and drift patterns of three commercially available sprayers; the multi-fan (Quantum Mist™), pneumatic (Gregoire), and electrostatic (On Target) sprayer technologies. For the total spray collected, the Quantum Mist™ had an average canopy deposition of 88.4% and 97.2%, and drift of 11.6% and 2.8%, at early and mid-season, respectively. The Gregoire had an average canopy deposition of 95.6% and 96.7%, and drift of 4.4% and 3.3% at early and mid-season, respectively. The On Target had an average canopy deposition of 91.8% and 80.0%, and drift of 8.2% and 20% at early and mid-season, respectively. These trials provided directly applicable information that growers can utilize for sprayer optimization and field performance of 4 commonly used sprayers in vineyards.