

ASAE S561.1 APR2004 (R2018ED)

Procedure for Measuring Drift Deposits from Ground, Orchard, and Aerial Sprayers



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Supersedes ASAE S387, Test Procedure for Measuring Deposits and Airborne Spray from Ground Swath Sprayers. Developed by the Pest Control and Fertilizer Application Committee; approved by the Power and Machinery Division Standards Committee; adopted by ASAE June 1998; reaffirmed February 2003; revised April 2004; reaffirmed February 2009; November 2013; reaffirmed and editorially revised October 2018.

Keywords: Air assist spraying, Applicators, Atmosphere stability, Mass balance, Reference sprayers, Spray deposition, Spray drift, Spray sampling

1 Purpose and Scope

1.1 This Standard establishes a test procedure for use in measuring and reporting in-swath and out-of-swath ground deposits from sprayers. It does not prescribe a procedure for calibration of sprayers. This Standard recommends the minimum necessary measurements and does not preclude other measurements that might be of value.

1.2 This Standard pertains to three types of sprayers (ground, orchard and aerial) applying agricultural chemicals in a swath. It does not pertain to foggers or other sprayers where the spray is not intended to be deposited in a swath on the land surface or crop canopy. For purposes of this Standard, a 'test' will consist of the application of spray and the measurement and recording of all required or needed deposit, operational, equipment, and weather data. A 'test' may consist of either one or more than one pass of the sprayer(s) over a specified land area.

1.3 This Standard allows for two procedures: 1) a limited number of tests to be run when a reference spray application is used in conjunction with another sprayer/formulation of interest (both tests run temporally close to each other for co-variant statistical analysis) or 2) no reference spray application is required when a substantial number of tests (25 minimum is suggested for a statistical analysis purposes) are to be run at the same test site. Procedure (1) will permit the direct comparison of the drift from a given sprayer/formulation combination with that caused by the reference spray application. The reference spray application and the test application shall be made temporally close to each other in order to ensure equality of meteorological conditions. The chemicals or tracers used with the test and reference sprayers must not interfere with one another since spray from both will be deposited on each target. Procedure (2) permits the development of a reasonably large database for the purpose of developing and/or testing a drift model. Procedure (2) may also be used in conjunction with a reference spray application. Either procedure can be used for single pass-single swath or multiple pass-multiple adjacent swath tests.

2 Reference Sprayers

2.1 Reference spray application is described in 2.1.1 The reference spray application provides a basis of comparison between any two spray tests irrespective of the location of the tests or the prevailing weather conditions. The spray carrier for all reference spray applications shall be water. The "reference" and "treatment" spray booms may be located on the same sprayer for ground tests. Such applications have been developed because it is not desirable to limit all users of this procedure to one size or composition of the targets.

2.1.1 The reference spray application will be seven disc and core nozzles (D4 discs with #25 cores). The nozzles shall be mounted on a vertical boom and evenly spaced between 1 and 3 m above the ground. All nozzles shall face the rear (i.e., not tilted up, down or sideways). Gage pressure at the top nozzle shall be 690