Experimental study using wind tunnel for measuring Variability of spray drift sedimentation

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Abstract. Spray drift is defined as physical movement of pesticides by air action as a particle droplet and is not deposited on the intended target. Evaluation of the parameters affecting on spray drift is difficult. The accurate studies are expensive, as well as, the variability is high under field conditions due to instability in wind speed and turbulence. Wind tunnel experiments are adequate to simulate the results of field measurements for spray drift. A laboratory experiments were carried out to study the variability in the wind tunnel for measuring sedimentation of spray drift under stable weather conditions, and boom height. Different models are conducted in this study using three type of nozzles of Flat fan nozzle, Flat fan air injection(single jet) and flat fan air injection (twin jet). All these nozzles at the same angle and size 110 02, three wind speeds of 2, 4, and 7.5 ms^{-1}, and the boom height was of 60 cm. Distribution test bench used for measuring sedimentation of spray drift . Air temperature and relative humidity were 20^{o} and upon 95% respectively. Main results showed low variability in the measuring of sedimentation of spray drift in a wind tunnel experiments compared to the previous studies. Higher variability observed with flat fan air induction nozzle twin jet compared to other nozzles tested in this study.

Keywords: sedimentation of spray drift, variability, wind tunnel