

INFLUENCE OF GLYPHOSATE FORMULATION, PRODUCT RATE, AND CARRIER VOLUME ON SPRAY DRIFT. Bryan G. Young, Associate Professor, Southern Illinois University, Carbondale, IL 62901.

Herbicide applicators invest a significant amount of time and expense to minimize glyphosate spray drift. Current glyphosate applications involve the use of numerous glyphosate formulations and a range of herbicide application rates and carrier volumes. The influence these factors have on glyphosate drift has not been described to the same extent as other parameters such as low drift spray nozzles or drift control adjuvants. Thus, wind tunnel studies were conducted using an XR110015 nozzle at 276 kPa with a wind velocity of 4.5 m/s to determine the influence of glyphosate formulation, product rate, and carrier volume on glyphosate drift.

In the first study, particle spray drift from 12 glyphosate formulations ranged from 47 to 63% of the spray volume applied. Based on the amount of particle drift, treatments could be divided into two categories, glyphosate formulations that do and do not require additional surfactant. Spray solutions containing glyphosate formulations that required additional surfactant resulted in less movement of the spray solution out of the nozzle target area (drift) than water alone. In most instances, spray solutions that did not require additional surfactant resulted in more particle drift than water alone.

In the second study, glyphosate (Roundup Weathermax) was applied at four rates in combination with three carrier volumes. This treatment arrangement influenced the concentration of glyphosate and the formulated adjuvant system in the spray solution. The greatest amount of drift (70%) occurred at the highest concentration (high glyphosate rate; low carrier volume) and the least amount of drift (51%) occurred from the lowest concentration (low glyphosate rate; high carrier volume). Glyphosate drift varied by 16% depending on the product formulation and by 19% depending on the herbicide rate and carrier volume. Thus, these factors deserve some consideration when implementing methods to minimize drift.