

# Spray Volume Can Have an Enormous Effect!



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Spray volumes or flow rates of pesticide sprayers vary among preference of applicators, product(s) to be applied (including type and formulation), intended application site (i.e., putting green, fairway, athletic field, home or commercial lawn), etc. Less than a decade ago, flow rates of 3-5 gallons per 1000 square feet were not uncommon. Since then, many pesticide applicators have dramatically lowered their flow rates to near 0.5 gallons (spray volume = product(s) and water) per 1000 square feet ( $\approx$  22 gallons/acre). This shift is likely in part due to convenience as well as development of pesticide formulations. Time is often equated with money; for this reason pesticide applicators are continuously looking for ways to save time ( $\approx$  money). As a result, they have resorted to reducing the number or frequency of times they must fill their spray tank, thus saving time. Additionally, pesticide manufacturers have made a concerted effort to develop pesticide formulations that enable pesticide applicators to dramatically reduce spray volumes.

Depending on the pesticide type (i.e., fungicide, insecticide, herbicide, plant growth regulator, etc.), flow rate can significantly influence the performance (efficacy) of a control product. Typically, most herbicides can effectively be applied at relatively low spray volumes (< 1 gallon per 1000 square feet). Depending on the mode of action (i.e., contact, systemic, etc.), many fungicides should be applied at slightly higher spray volumes than herbicides (i.e., 1-2 gallons per 1000 square feet). While some insecticides, especially white grub control products, should be applied at

higher spray volumes, ideally 2-4 gallons per 1000 square feet to maximize efficacy.

As a time-saving measure, many turfgrass managers prefer to tank-mix combinations of control products (e.g., insecticides, fungicides, wetting agents, micronutrients, etc.). In theory, this approach sounds rational or justified; however, this approach can potentially result in poor control product performance. As previously stated, certain control products require (i.e., pesticide label) specific application spray volumes, and when they are not applied according to the label recommendations, their performance is jeopardized! For this reason, it is critical to fully read and follow the pesticide label to avoid any potential incompatibilities (i.e., spray volume or chemically, including formulation and pH).

Another factor to consider is the selection of spray tip or nozzle. Nozzle size directly effects droplet size, which in turn influences flow rate as well as coverage of control product. Subsequently, performance of a control product is impacted by nozzle selection. The majority of nozzles used in agricul-

ture can be classified as producing either fine, medium, coarse or very coarse droplets. The most common nozzles used in the turfgrass arena are those nozzles producing medium-sized droplets; they can be used for contact and systemic herbicides, pre-emergence surface applied herbicides, insecticides and fungicides. When choosing a spray nozzle that produces a droplet size in one of the aforementioned categories, it is important to consider that one nozzle can produce different droplet size classifications at different nozzle pressures (psi). For example, a nozzle may produce medium droplets at low pressure, while producing fine droplets as pressure increases. Spray nozzle selection information (i.e., drop size, output, etc.) can be obtained from respective manufacturer.

When using any pesticide, **ALWAYS** read and follow the pesticide label, it is the law! The pesticide label will provide you with the necessary information to determine the appropriate nozzle selection and spray volume, thus allowing you to attain the maximum performance of a control product, saving you time, effort, and money. ♣

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