



# Can Spray Volume Influence Product Performance?

By Dr. R. Chris Williamson, Department of Entomology, University of Wisconsin-Madison

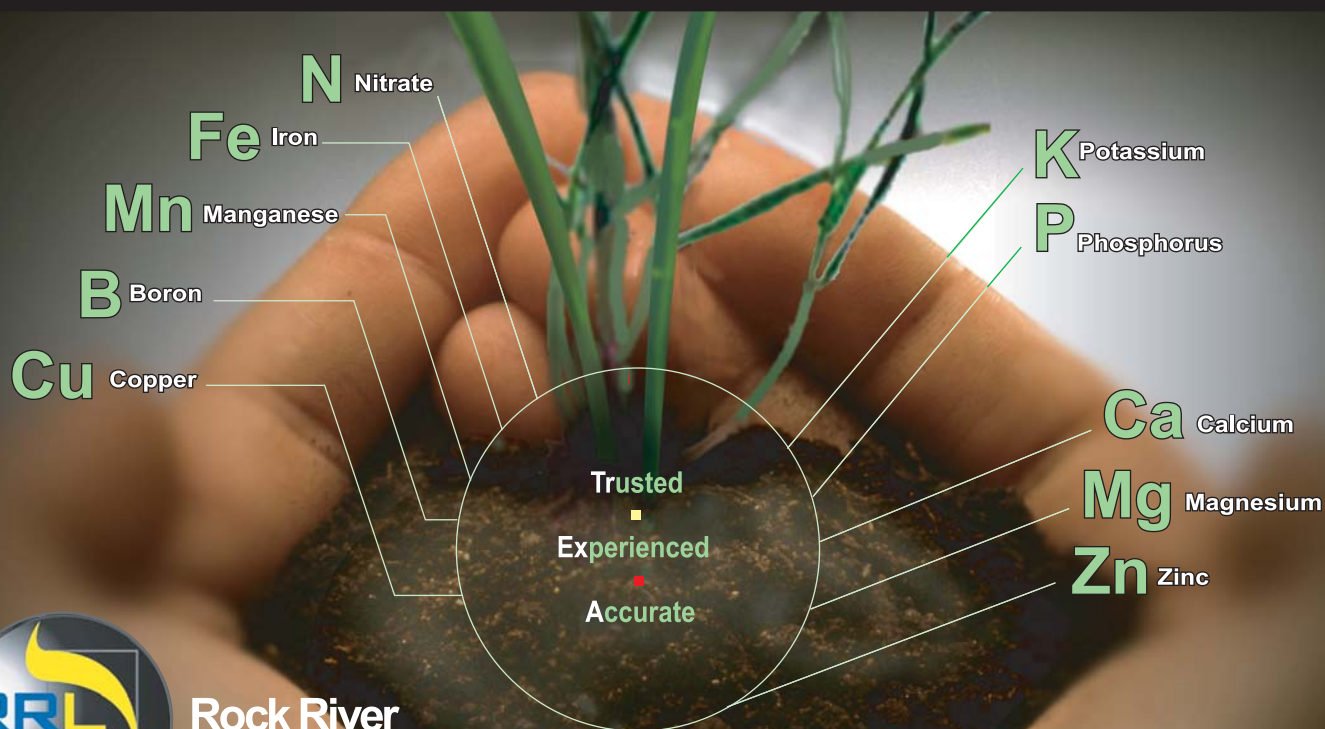
Spray volume or flow rate can vary dramatically among applicators, pesticide type and formulation, application site (i.e., putting green, fairway, athletic field, lawn, etc.). Spray volumes > 4 gallons per 1000 square feet were not uncommon less than a decade ago. However, spray volumes have since been reduced dramatically to rates as low as 0.5 gallons per 1000 square feet (about 22 gallons/Acre). This dramatic change to lower spray volumes is likely due in part due to convenience (i.e., fewer tank mixes and

application) as well as development of improved pesticide formulations and nozzle types that deliver pesticides more effectively. Time is often associated with money, thus pesticide applicators are continuously looking for ways to save time (money). Consequently, turf managers have quickly identified that reducing spray volume is an effective way to reduce the number of tanks required to spray respective areas of turf, thus theoretically saving valuable time. In addition, pesticide manufacturers have made a con-

certed 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.) and flow rate, performance (i.e., efficacy) can be significantly influenced. Most herbicides can effectively be applied at relatively low spray volumes (< 1 gallon per 1000 square feet) compared to other types of pesticides such as fungicides and insecticides. Depending on the mode of action (i.e., contact,

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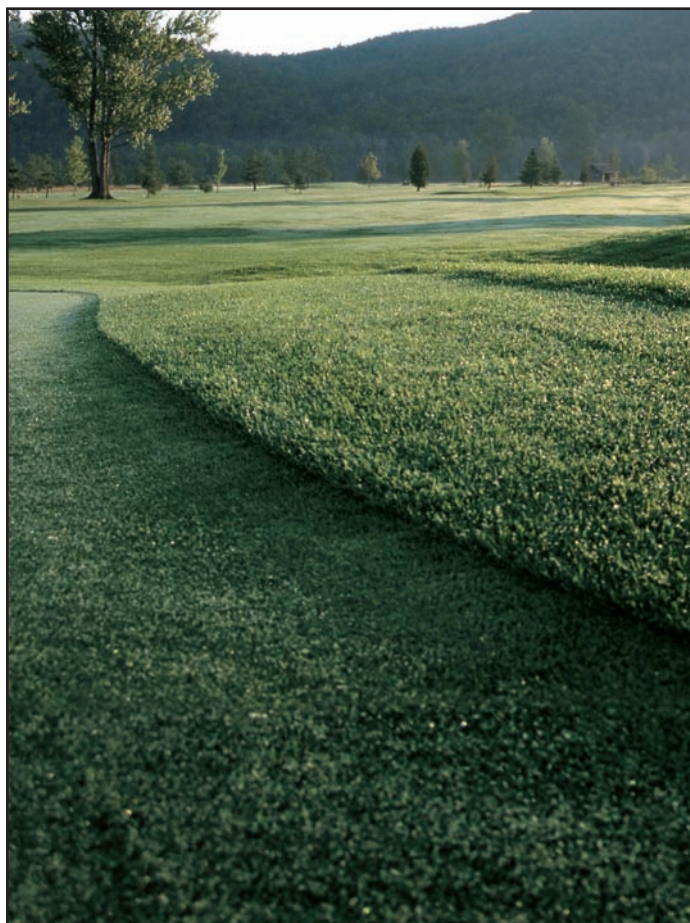
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systemic, translaminar, etc.), most fungicides should be applied at spray volumes between 1-2 gallons per 1000 square feet. While some insecticides, especially white grub control products, should be applied at dramatically higher spray volumes, ideally 2-4 gallons per 1000 square feet to maximize efficacy.

Many turfgrass managers prefer to tank-mix combinations of control products (e.g., insecticides, fungicides, wetting agents, micronutrients, etc.) as a time-saving means. In theory, this approach appears rational or justified; however, it can potentially result in poor control product performance. Rarely do product manufacturers provide information regarding tank-mix compatibility or performance (i.e., efficacy) unless there has been a problem of incompatibility. This important type of information is occasionally provided by university researchers or more commonly determined by turfgrass managers through trial and unfortunately error as a result of previous experience. Certain control products require specific application spray volumes, and when they are not applied accordingly, their performance is jeopardized! Thus, it is critical to understand the appropriate spray volume of respective control agents (pesticides) as well as any potential incompatibilities.

Another important 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. Consequently, the performance a control product can be dramatically impacted by nozzle selection. The majority of nozzles used in agriculture 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 manufacturers.

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 application information. 



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