



# APPLICATION GUIDE TO SPRAY DROPLET SIZE, DRIFT, SPRAY TIP SELECTION AND SPRAY COVERAGE

Kurt Hembree, UC Cooperative Extension, Fresno County  
 550 E. Shaw Ave. Suite 210-B, Fresno, CA 93710 • Phone (559) 241-7520  
 Website: <http://cefresno.ucanr.edu> • Email: [kjhembree@ucanr.edu](mailto:kjhembree@ucanr.edu)



Successful weed control with herbicides rests on the ability to apply weed sprays accurately, uniformly, and efficiently. Spraying with enough coverage and minimal drift are important factors that influence herbicide performance and must be considered. Spray drift is the physical movement of spray particles through the air from the application site to an area where the treatment is not intended, usually resulting in non-target plant injury. Spray droplet size has the greatest influence on spray drift potential. Spray droplets <200 microns in diameter are light, remain airborne a long time, and are the most prone to drift, so should be avoided when using herbicides. Spray droplet size also influences spray coverage. Generally, as spray droplet size increases, spray coverage decreases. As a general rule, use spray nozzles and an operating pressures that produce large enough spray droplets (at least medium-sized) to minimize drift, while providing adequate coverage for the herbicide type(s) (contact, systemic, or preemergent) used. Examples of different types of drift-reducing nozzles and the spray coverage they produce at different spray volumes are shown below. Also, spray when conditions are favorable and replace spray tips that are worn or damaged.

*Spray droplet size and distribution pattern*

Droplet color code	Droplet size	7.5 gpa	15 gpa
<b>VF</b>	Very Fine <145 microns		
<b>F</b>	Fine 145-225 microns		
<b>M</b>	Medium 226-325 microns		
<b>C</b>	Coarse 326-400 microns		
<b>VC</b>	Very Coarse 401-500 microns		
<b>XC</b>	Extremely Coarse >500 microns		

*Drift-reducing nozzles and their spray coverage (30 psi and 0.4 gpm)*

Nozzle type	15 gpa	25 gpa	35 gpa	45 gpa
Extended Range (XR11004)				
Turbo Teejet (TT11004)				
Turbo Twinjet (TTJ60-11004)				
Air Induction Extended Range (AIXR11004)				
Air Induction (AI11004)				
Turbo Teejet Induction (TTI11004)				

*Application and environmental conditions affecting drift*

Application factor	Favors less drift	Favors more drift
Spray droplet size	>225 microns	<225 microns
Spray height	Lower	Higher
Spray pressure	Lower	Higher
Spray tip angle	≤80°	>80°
Travel speed (mph)	<6	>6
Environment factor	Favors less drift	Favors more drift
Wind speed (mph)	3 to 7	0 to <3, or >7
Air temperature	<85 °F	>85 °F
Relative humidity	Higher (humid)	Lower (dry)
Air stability	Vertical mixing	Inversion layer

*Spray tip delivery is critical for uniformity in coverage*

