

ASABE S572.1 Droplet Size Classification

The American Society of Agricultural and Biological Engineers (ASABE) developed the ASABE S572.1 standard to measure and interpret spray quality from tips.

Spray Quality*	Size of Droplets	VMD Range (Microns**)	Color Code	Retention on Difficult to Wet Leaves	Used for	Drift Potential
Extremely Fine	Small	<60	Purple	Excellent	Exceptions	High
Very Fine	↓	61-105	Red	Excellent	Exceptions	↓
Fine		106-235	Orange	Very Good	Good Cover	
Medium		236-340	Yellow	Good	Most Products	
Coarse		341-403	Blue	Moderate	Systemic Herbicides	
Very Coarse		404-502	Green	Poor	Soil Herbicides	
Extremely Coarse	↓	503-665	White	Very Poor	Liquid Fertilizer	↓
Ultra Coarse		Large	>665	Black	Very Poor	

*Always read the pesticide label to determine which spray quality is required.

**Estimated from sample reference graph in ASABE/ANSI/ASAE Standard S572.1

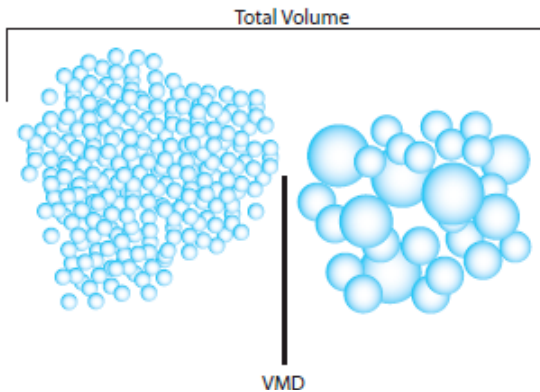
ASABE S572.1 standard uses eight droplet classification categories, six of which are common for agriculture and horticulture:



Most agrochemical applications recommend a fine, medium, or coarse spray:

Fine	sprays provide enhanced retention for directed spraying on the target including: <ul style="list-style-type: none"> • Foliar-acting weed control • Contact-acting fungicides and insecticides 	Medium	sprays are the most widely used spray type. <ul style="list-style-type: none"> • Used by default by most applicators when spray quality is not defined by the label • Systemic-acting fungicides, insecticides and herbicides. 	Coarse	sprays are used with systemic, residual, and soil-applied herbicides.
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A. Understanding Droplet VMD



VMD is the droplet size at which 50% of the spray volume is in droplets larger than the VMD and 50% of the volume is in droplets smaller than the VMD (adapted from Matthews 1992).

Degree of Atomization	Droplet Size (Microns)	Relative Size Related to Common Objects
Fog	Up to 25	Point of a Needle (25 Microns)
Fine Mist	20-100	Human Hair (100 Microns)
Fine Drizzle	100-250	Sewing Thread (150 Microns)
Heavy Drizzle	250-500	Toothbrush Bristle (300 Microns)
Light Rain	500-800	Staple (550 Microns)
Heavy Rain	800-1000	Paper Clip (850 Microns)
Thunderstorm Rain	1000-4000	#2 Pencil Lead (2000 Microns)

Droplet sizes are usually expressed in microns (micrometers). One micron equals one thousandth of a millimeter. Other than the effects of the specific material being sprayed, the four major factors effecting droplet size are: tip style, capacity, spraying pressure and spray pattern type. Lower spraying pressures provide larger droplet sizes, while higher spraying pressures yield smaller droplet sizes. The smallest droplet sizes are achieved by air atomizing tips. Generally speaking, the largest spray droplets are produced by wide-angle, flat hydraulic spray tips. In the hydraulic spray tip series, the smallest droplet sizes are produced by hollow-cone spray tips.