CALIBRATION OF BACKPACK SPRAYERS 1000 Ft^2 Method

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Backpack sprayers are often used to treat ornamental or small areas of turf. Herbicide recommendations are based amount per acre and amount per 100 0 ft^2. Regardless of the type of sprayer used to apply herbicides, the speed, pressure and nozzle height must be kept constant for accurate application. The backpack sprayer may require some modification so that it is better suited for application. A pressure gauge mounted on the tank side of the shutoff valve will allow continuous monitoring of the tank pressure, which must remain uniform. Optimum pressure control can be achieved by inserting a pressure regulator between the pressure gauge and nozzle. To prevent dripping after the shutoff valve is closed, use a quick, positive pressure shutoff valve or a strainer with a check valve. Nozzle clogging, a problem associated with the use of wettable powders (as well as dry flowable [DF] and water dispersible granular [WDG] formulations) can be reduced by inserting a 50 mesh in-line strainer and keeping the solution constantly agitated. The following is a procedure of 1000 ft^2.

Step 1. Measure the length and width of the test area to be sprayed. Then calculate the area to be covered.

Test Area is: lengthft X width ft = _____ ft^2 _____

Step 2. Fill sprayer with water and spray the test area. Record the amount of water to refill the sprayer.

Volume (ounces) per test area _____

Step 3. Find the label rate of material to be applied per 1000 ft^2 .

Rate _____per 1000 ft^2

Step 4. $$\frac{\textit{1000 ft}^2 \textit{ x Volume (ounces) per test area}}{\textit{Test Area (ft}^2\textit{)}} = \textit{Volume (ounces) per 1000 ft}^2$$

Step 5. Calculate the area covered per tank as follows:

$$\frac{\textit{Tank volume (ounces) x 1000 ft}^2}{\textit{Volume per 1000 ft}^2} = \textit{Area covered per tank (ft}^2\textit{)}$$

Step 6. Calculate amount of material to add to tank.

$$\frac{\textit{Area per tank (ft}^2\textit{) x Label rate per 1000 ft}^2}{\textit{1000}} = \textit{Amount to add (rate units)}$$

Solutions derived from the above may need to be converted to a smaller unit in order to accurately measure the pesticide accurately. The following conversion will help simplify this problem.

Conversions:

VOLUME		WEIGHT	
gallons x 128	= fluid ounces (fl oz)	pounds x 16	= weight ounces (wt oz)
pints x 16	= fluid ounces (fl oz)	wt. ounces x 28.35	= grams (g)
fl oz x 29.57	= milliliters (ml)	grams x 1000	= milligrams (mg)
gallons x 4	= quarts (qts)		
quarts x 2	= pints (pts)		
fl oz x 2	= Tablespoons (Tbs)		
tsp x 3	= Tablespoons (Tbs)		
tsp x 5	= milliliters (ml)		

An example of using this conversion chart. If the rate calls for 0.25 gallons of material then converting to ounces would be done as follows: 1 gallon has 128 ounces, so multiply 0.25 gallons by 128 to get 32 ounces. So, you would need to measure out 32 ounces for your application. The same thing for a weight. If you need 0.25 pounds, then multiply 0.25 by 16. This is calculated as 0.25 pounds times 16 to get 4 weight ounces of material.