Sprayer Calibration Methods

***Always use clean water when calibrating your equipment as well as the same nozzles or settings to be used under field conditions when spraying. If you change nozzles or settings, you must also calibrate to those settings!*

5940 Method

Useful for periodic calibration and verification with nozzle data provided by the manufacturer.

GPA = Gallons Per Acre
GPM = Gallons per Minute collected from a single nozzle. (Make sure all nozzles are within a 10% range.)
5940 is a constant
MPH = Field Speed
W = 1) width between nozzles or 2) width of a broadjet swath in inches.

1. Find output with given nozzle size, nozzle width, and field speed: **GPA = GPM x 5940/MPH x W**
2. Find speed with given nozzle size, nozzle width, and boom output: **MPH = GPM x 5940 / GPA x W**
3. Find nozzle flow rate with given output, nozzle width, and speed: **GPM = GPA x W x MPH / 5940**

128th Acre Method (No Math)

Useful for calibrating backpack sprayers or high-pressure hand lines or guns. No math required!

1. Measure out an area that is 18 ½ ft. by 18 ½ ft.
2. Spray area with water and time how long it takes. Try to maintain a constant pressure and speed.
3. Repeat twice more and calculate the average time required to spray the area.
4. Spray into a container for the average time calculated above.
5. Measure the amount of water collected. ***Ounces collected = GPA applied***

Calibration Strip (long-hand method)

An accurate method for boom or "boomless" sprayers.

1. Establish and mark a "calibration strip" distance, usually at least 100 feet. (*e.g. 200 feet*)
2. The swath width is the effective width of your spray pattern. (*e.g. 20 feet*)
3. Calculate the area (*length x width*) of your calibration strip (*i.e. 20 x 200 = 4000 sq. feet*). Now determine how many calibrations strips are in an acre by dividing 43,560 sq. feet by the area of your calibration strip (*i.e. 43,560/4000 = 10.89*)
4. From a running start, record the time required to spray the calibration strip with water. Repeat two more times and determine an average time required. Collect the output from the nozzle (or a single nozzle and multiple by the total number of nozzles if calibrating a boom sprayer) for the time determined above and measure this amount. (*e.g. It takes an average of 27 seconds to spray the test strip and in that time you collect 295 ozs. (2.3 gallons) from your nozzle.*)
5. Determine the **GPA** output of the sprayer by multiplying the amount of water applied to the calibration strip by the number of calibrations strips in one acre.
   (*i.e. 2.3 gallons x 10.89 ≈ **25 GPA***)

Use the following chart to determine the amount of herbicide to add to each gallon of water used by your sprayer.

Spray Volume Gal/Ac	AMOUNT OF HERBICIDE TO ADD TO EACH GALLON					
	Recommended Herbicide Rate/Acre					
	1 fl oz	3 fl oz	5 fl oz	1 pint	1 quart	2 quarts
15	2.2 ml	6.8 ml	11.2 ml	1 fl oz	2 fl oz	4 fl oz
20	1.5 ml	4.5 ml	7.5 ml	24 ml	48 ml	3 ¼ fl oz
30	1 ml	3 ml	5 ml	16 ml	32 ml	2 fl oz
40	0.8 ml	2.3 ml	3.8 ml	12 ml	24 ml	1 ⅔ fl oz
50	0.6 ml	1.8 ml	3 ml	9.6 ml	19.2 ml	1 ¼ fl oz
60	0.5 ml	1.5 ml	2.5 ml	8 ml	16 ml	32 ml
70	0.4 ml	1.3 ml	2.1 ml	6.9 ml	13.7 ml	27.5 ml
80	0.4 ml	1.1 ml	1.9 ml	6.2 ml	11.6 ml	23.8 ml
90	0.3 ml	0.8 ml	1.7 ml	5 ml	10 ml	21.2 ml
100	0.2 ml	0.6 ml	1.5 ml	5 ml	10 ml	19 ml
120	0.1 ml	0.4 ml	1 ml	3.8 ml	7.5 ml	15 ml

LIQUID CONVERSION

1 Gallon = 4 quarts or 8 pints or 128 fluid ounces
1 Quart = 2 pints or 4 cups or 32 fluid ounces
1 Pint = 2 cups or 16 fluid ounces
1 Cup = 8 fluid ounces or 16 tablespoons
1 Fluid oz. = 30 ml or cc
1 Tablespoon = 0.5 fluid ounces or 3 teaspoons or 15 ml
1 teaspoon = 5 ml