

Sprayer Calibration

It is critical to know the output of a sprayer in order to be accurate in adding an herbicide to the tank.

Handgun

1. Measure a calibration plot that is exactly 18.5 ft X 18.5 ft (128th of an acre).
2. Spray the plot uniformly with water, keeping the sprayer pressure constant. Note the number of seconds required.
3. Spray into a bucket for the same number of seconds, again keeping the sprayer pressure constant.
4. Measure the number of ounces of water in the bucket.
5. Number of ounces of water measured from the bucket is equal to the number of gallons per acre (GPA) the sprayer is delivering.

2 tablespoons = 6 teaspoons = 1 fluid ounce = 29.57 milliliters
8 fluid ounces = 1 cup; 2 cups = 1 pint; 2 pints = 1 quart;
4 quarts = 1 gallon; 1 gallon = 128 fluid ounces
1 ounce (dry) = 28.35 grams; 16 ounces = 1 pound
1 acre = 43,560 square feet; 1 meter = 3.281 feet
1 gallon of water = 8.3453 pounds of water

Boom or Boomless Sprayer Calibration

Volume method

1. On level ground, fill sprayer tank to a known level with water and drift agent (if using).
2. Turn on sprayer till all nozzles have output, shut off and refill tank to desired level.
3. Measure off $\frac{1}{4}$ of an acre, marking the start and end with a flag.

<u>Width of boom swath in feet</u>	<u>Linear feet to cover $\frac{1}{4}$ acres</u>
2	5445
4	2723
6	1815
8	1362
10	1090
20	545
30	363

4. Drive the measured $\frac{1}{4}$ acre with the speed that you will be using to spray, turning on the sprayer at the starting mark and off at the ending flag.
5. Return to the level ground that you filled the sprayer at and carefully measure the amount of water it takes to refill to the known level from step 1.
6. Multiply the amount from above step by 4. This is GPA (Gallons Per Acre).

Stationary method

1. On level ground, fill sprayer tank with water and drift agent (if using).
2. Turn on sprayer and measure spray pattern width in feet.
3. Collect liquid from each nozzle for 1 minute. Measure in ounces.
4. Divide ounces by 128 to determine GPM (Gallons Per Minute).
5. Determine speed (MPH) you will be using during spraying.
6. With the below formula calculate GPA (Gallons Per Acre).

$$\text{GPA} = \frac{\text{GPM} \times 495}{\text{MPH} \times \text{swath width (feet)}}$$

ADDING CORRECT AMOUNT OF HERBICIDE TO SPRAYER TANK:

(Only after a sprayer is calibrated is it possible to calculate the correct amount of herbicide to add to the sprayer tank.)

Step A. Determine volume of a full spray tank.

Tank volume = _____gallons

Step B. Determine the number of acres that can be sprayed with a full tank.

-Divide tank volume by Gallons per Acre (from last step on calibration sheet).

_____ Gallons per Tank ÷ _____ Gallons per Acre = _____Acres per Tank

Step C. From the herbicide label, determine the amount of herbicide concentrate you intend to apply per acre. (Circle units of herbicide measurement used on the label. Use same units through remainder of exercise.)

_____ (Quarts, Pints, Ounces, or Pounds) of Herbicide intended per Acre
Circle Unit

Step D. Multiply amount of herbicide per acre (from Step C) times the number of acres covered by a full spray tank to determine total amount of herbicide to add to a full tank. (Use the same unit of measurement as in Step C.)

_____ (Qts, Pts, Ozs, Lbs) Herbicide per Acre X _____ Acres Per Tank
Circle Unit

= _____ (Qts, Pts, Ozs, Lbs) Herbicide per Tank.
Circle Unit

****Spraying at the calibration speed and pressure will deliver the desired amount of herbicide per acre (amount listed Step C.)**