Sprayer Equipment Calibration

Backpack Spray and Other Want Spraying Equipment

1. Thoroughly clean sprayer and fill with clean water.
2. Measure and mark out an area equal to 1/128 of an acre (approx. 340 sq. ft. or 18.5'x18.5').
3. Using consistent pressure and walking speed, time how long it takes to thoroughly spray the area. For better consistency, test on similar terrain that will be sprayed.
4. Using same pressure, spray into measuring container for the recorded time from step 3. Each ounce captured is equal to gallons per acre. (6 ounces = 6 gallons per acre)

Boom Sprayer (1/128 Acre Method)

1. Thoroughly clean sprayer and fill tank with clean water.
2. Measure nozzle spacing (inches from center-to-center of nozzles) and refer to chart for distance needed to travel. (Example: 20-inch nozzle spacing would require a travel distance of 204 feet.
3. Select throttle and gear for spraying and drive the measured course simulating the actual spraying operation. Record the time it takes the measured course.
4. With sprayer parked, set the desired throttle and pressure, and engage all nozzles. Collect the output from one nozzle for the recorded time from step 3.
5. Nozzle output in ounces is equal to the gallons per acre (Example: 15 ounces = 15 gallons per acre).
6. If the calibration results are not desired, change the rate by:
    a. Adjusting ground speed
    b. Adjusting pressure
    c. Adjusting nozzle size
7. Recalibrate.

Nozzle Spacing (inches)	Travel Distance (feet)
14	291
16	255
18	227
20	204
22	185
24	170
26	157
28	146
30	136
32	127
34	120
36	113
38	107

Nozzle Spacing: _____ Travel Distance: _____

Time: _____ Output: _____

** Output in ounces equals Gallons per Acre

Boom Sprayer (1/8 Acre Method)

1. Thoroughly clean sprayer and fill tank with clean water.
2. Measure effective spray width of sprayer by measuring the total wetted spray pattern width in feet and multiplying by 80% (0.80). Multiply by 80% to ensure that you have good overlap in the spray pattern. (Example: Total wetted spray pattern width of 30 feet x 0.80 = effective spray width of 24 feet)
3. Use the chart for distance to drive (Example: An effective spray width of 25 feet would require a travel distance of 218 feet). For swath widths not shown on chart, use 5445 divided by the effective swath width to calculate travel distance.

Effective Swath Width (feet)	Travel Distance (feet)
22	273
22.5	243
25	218
27.5	199
30	182
32.5	168
35	156
37.5	146
40	137
42.5	128
45	121
47.5	115
50	109

4. Select throttle and gear for spraying and drive the measured course simulating the actual spraying operation. Record the time it takes the measured course.
5. With sprayer parked, set the desired throttle and pressure, and engage all nozzles. Collect the output from the sprayer for the recorded time from step 3. If sprayer has two boomless nozzles, collect from both sprayers and add together for next step.
6. Output in pints (16 ounces per pint) equals the gallons per acre. (15 pints = 15 gallons per acre)
7. If the calibration results are not desired, change the rate by:
    a. Adjusting ground speed
    b. Adjusting pressure
    c. Adjusting nozzle size
8. Recalibrate.

Total Spray Width: _____ x 0.80 = Effective Width

Effective Width: _____

Travel Distance: _____ Time: _____

Output in ounce:

Left Side: _____

Right Side: _____

Total Output in Ounces _____ / 16 = _____ gallons per acre

Spray Volume	**Amount of Herbicide to Add to Each Gallon Recommended Herbicide Rate/Acre**				
Gallons/Acre	1 Pint	1 Quart	2 Quarts	3 Quarts	4 Quarts
15	6 tsp	2 fl oz	4 fl oz	6.25 fl oz	8.5 fl oz
20	5 tsp	10 tsp	3.25 fl oz	4.75 fl oz	6.33 fl oz
30	3 tsp	6 tsp	2 fl oz	3.25 fl oz	4.25 fl oz
40	2.33 tsp	4.75 tsp	1.66 fl oz	2.33 fl oz	3.25 fl oz
50	2 tsp	3.75 tsp	1.25 fl oz	2 fl oz	2.5 fl oz
60	1.66 tsp	3.25 tsp	6.33 tsp	1.66 fl oz	2 fl oz
70	1.33 tsp	2.75 tsp	5.5 tsp	1.33 fl oz	1.75 fl oz
80	1.25 tsp	2.33 tsp	4.75 tsp	7.25 tsp	9.5 tsp
90	1 tsp	2 tsp	4.25 tsp	6.33 tsp	8.5 tsp
100	1 tsp	2 tsp	3.75 tsp	5.75 tsp	7.66 tsp
120	0.75 tsp	1.5 tsp	3 tsp	4.75 tsp	6 tsp

TBS = tablespoons tsp = teaspoon fl oz = fluid ounces

3 tsp = 1 TBS 2 TBS = 1 fl oz 8 fl oz = 1 cup 1 cup = 16 TBS

Example: Assume that the calibration of your sprayer (steps above) yields an output of 30 gallons per acre (GPA) and your sprayer holds 3 gallons. Your herbicide label for the target weed species dictates an herbicide application rate of 1 pint/acre. Go to the chart and read across from 30 GPA to 1-pint column to see the amount of herbicide to add per gallon is 3 teaspoons. Since your sprayer holds 3 gallons of total solution, you would add 9 teaspoons of herbicide in addition to the water in each tank.