



Boom Sprayer Calibration

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Calibration of an instrument ensures the measurement or a machine's accuracy; compared to a known standard. It is essential to have the proper calibration because you want the right amount of chemicals to be applied to the target. Therefore, calibration is very important for minimizing the damage to plants and reducing environmental impact. There are many different methods for calibrating a boom sprayer. In the 1/128th of an acre method, the amount of output for each nozzle that would cover 1/128 of an acre will be measured. The question is, how often should you calibrate? A sprayer should be calibrated several times a year, the 1/128th of an acre method is quick and easy to calibrate the sprayer regularly.

Supplies needed: **Measuring tape to measure the spacing between the nozzles, Walking wheel to measure our travel distance, Measuring cup or pitcher** to catch output from the nozzles that measures in ounces (the measured Ounces equals Gallons per acre), **Stopwatch, to monitor the traveling time**, and **Flags to mark the beginning and the ends of our travel distance**.

For safety, always use clean water to limit your exposure to the chemical during the calibration. Before you start, inspect the sprayer to make sure everything is in good condition, the nozzles are all match, and they are undamaged. It is impossible to get a good calibration on a boom with mixed nozzles. Next, set the pressure to match the nozzles' optimum range.

When the sprayer is ready, first determine the nozzle spacing on your boom. For example, if the space between the center of a nozzle to the next nozzle is 20 inches, make sure all of these nozzles' spacing is the same on a 20-inch spacing. Refer to the measuring

chart to calculate the distance covering 1/128th of an acre. Based on a nozzle spacing of 20 inches and the measuring chart, measure out a course of 204 feet and flag the 204-foot traveling distance.

To be precisely matched with your operation and practice, travel the distance between flagged points, maintaining the same traveling speed and the PTO—RPM.

By measuring the traveling time, you can check the output from each nozzle for the recorded time. For example, if the traveling time is 40 seconds, catch each nozzle output for 40 seconds to match the 1/128th of an acre.

For example, an output of 25 ounces in 40 seconds, is equivalent to spraying 25 gallons per acre. Repeat this for every nozzle along the boom to ensure they are all within an acceptable range, usually within 5 percent of this 25-ounce target. To determine final calibrated gallons per acre, add all of the numbers you collected from each nozzle together and divide the total by the number of nozzles to get the average number of ounces. This average indicates that the unit is putting out the same number but in gallons per acre.

If you need to make significant adjustments to the gallons per acre, either speed up or slow down. For a non-variable rate sprayer, slower, you are putting out more; faster, you are putting out less. For both variable and non-variable rate sprayers, you can change nozzle size to make significant changes. You can also make some pressure adjustments to tweak the sprayer output.

Please follow the **Boom Sprayer Calibration Guide diagram**.

Boom Sprayer Calibration Guide



Fill tank with water



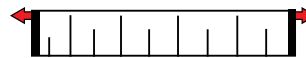
Measure the nozzle spacing (in)

Nozzle Spacing or Row Width (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
40	102

Check for traveling distance (ft) on standard chart

or calculate it by

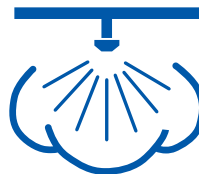
$4074 / \text{Nozzle spacing (in)}$



Flag out the traveling distance



Measure the traveling time between flagged points (seconds)



Catch the nozzle output for the traveling distance time to match the 1/128th of an acre.



Determine the final GPA, Calculate the average nozzle flow (Total Ounces/Total nozzles)

Answer = application rate in GPA.
Ex: Average nozzle flow = 14 oz., this means your application rate is 14 GPA.

Note:

- If nozzle output varies by more than 10%, check for blockages and replace nozzles if necessary.
- Use chemical resistant equipment: Footwear, gloves, overall and eyewear.
- For safety, use water for calibration.



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