Sprayer Calibration Guide

1/128 Method of Handgun Sprayer Calibration

Calibrating Single Nozzle Hand Sprayers and High Pressure Hand Guns

Sprayer calibration using the 1/128th method is relatively easy and can be completed very quickly. The 1/128th method is also called the "ounce calibration" method. There is a direct ratio established when determining how much material is applied to 128th of an acre (128 equals the number of ounces in a gallon).

Because a gallon is equal to 128 ounces and the test area to be sprayed is 1/128 of an acre, ounces collected is equal to gallons per acre.

Step 1

Measure out an area equal to 1/128 of an acre. Approximately 340 square feet or an area 18.5 feet by 18.5 feet.

Step 2

Measure the time it takes to spray the measured area with water only. Repeat several times and take the average time.

Step 3

Spray into a container for the same amount of time it took to spray the measured area. Measure the water collected in ounces. The amount collected in ounces equals gallons per acre.

Example: Hand sprayer

Step 1

Measure area. 18.5 x 18.5 feet = 340 ft2. (1/128 of an acre)

Step 2

Time to spray area = 51 seconds

Step 3

Amount collected = 40 ounces; therefore, 40 ounces = 40 gallons per acre

So, for this example, the applicator would put in 1 acre's worth of each herbicide/surfactant/adjuvant for every 40 gallons of water into the spray tank. So, if the herbicide product label recommended 16 oz. of the product per acre the applicator would put in 16 oz. of herbicide for every 40 gallons of water.
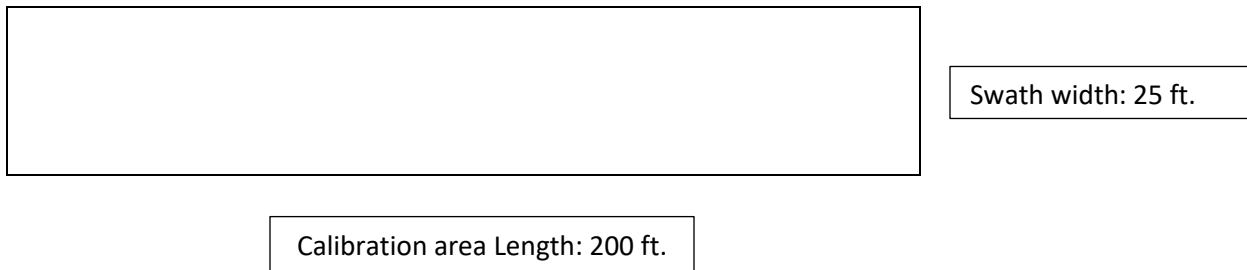
Boom Sprayer Calibration

Step 1

Determine the swath width of the boom apparatus. To do this, fill the spray tank ¼ - ½ full of **water only** and turn the boom on to mark the spray pattern on the ground. Next, measure the width of the spray pattern marked on the ground with a tape measure.

Step 2

Determine the size of the calibration area by multiplying the swath width by the length of the calibration area. A 150-200 ft. calibration area length is recommended, however shorter lengths will be sufficient if there are space restrictions. Measure and mark the calibration area lenght in an open area where the spray rig can be driven the length of it.

Example calibration area:

Swath width: 25 ft.

Calibration area Length: 200 ft.

25 ft. X 200 ft. = 5,000 square ft. calibration area

Step 3

Determine the driving speed at which the application will be made.

Step 4

Time how long it takes to drive the length of the calibration area at the speed at which the application will be made.

Step 5

Turn the boom sprayer apparatus on for the same amount of time it took to drive the length of the calibration area while collecting the water that is applied through the spray nozzles in a bucket. Multiple buckets will be needed for fixed booms with multiple nozzles.

Step 6

Pour the water collected from the nozzles into a measuring cup and record the amount of water collected in fluid ounces.

Step 7

The number of fluid ounces collected per the calibration area size needs to be converted into gallons per acre. To convert ounces to gallons divide the number of oz. by 128. To convert square ft. to acres divide the number of square ft. by 43,560. Next, divide the gallons by the acres to get the number of gallons per acre the boom sprayer apparatus is applying at the designated speed.

Example:

Amount of water collected = 120 oz.

Calibration area size = 5,000 square ft.

120 oz. per 5000 square ft. (It will take 120 oz. of spray solution to cover 5000 square ft.)

120 oz. / 128 = 0.9375 gallons

5000 square ft. / 43,560 = 0.1147 acres

0.9375 gallons / 0.1147 acres = 8.17 gallons per acre

For this example, the applicator would put in 1 acre's worth of each herbicide/surfactant/adjuvant for every 8.17 gallons of water in the spray tank. So, if the herbicide product label recommended 16 oz. per acre the applicator would put in 16 oz. of herbicide for every 8.17 gallons of water.