



Calibration of Herbicide Sprayers

Refill Method

This method involves filling the spray tank with water and spraying a measured area of land. The amount of water required to refill the tank to its original level is then determined to be the amount applied to the sprayed area.

This method begins by choosing the speed, pumping pressure, and appropriate nozzle tips. Fill the spray tank with water and operate the sprayer in place to fill all hoses. Refill the tank and spray a measured area as if you were applying the pesticide. Measure the amount of water needed to refill the tank. This is the application rate per unit of area. If it takes 20 gallons to refill the tank after spraying one acre, you are spraying at the rate of 20 gallons per acre. You should spray an area large enough to use at least 10 percent of the tank capacity.

The 1/128 – Acre or “Ounce Method”

The 1/128-acre method of calibration requires no calculations to determine the application rate of the sprayer. The fact that a gallon of liquid contains 128 fluid ounces is the basis for this method. If an area equal to 1/128 of an acre is sprayed for calibration purposes, the number of fluid ounces applied is equal to the application rate of the sprayer in gallons per acre (GPA). This eliminated the need for mathematical equations.

The key to the successful use of this method is selecting the proper length to travel for the calibration trial. The length of the course can be easily calculated by dividing 340 square feet (1/128 of 43,560 square feet or 1 acre) by the nozzle spacing in feet. Since 20 inches is a very common spacing for mounting nozzles on boom-type sprayers, this spacing will be used in the following example.

$$20 \text{ inches} \div 12 \text{ inches} = 1.67 \text{ feet}$$

$$340 \text{ square feet} \div 1.67 \text{ feet} = 203.6 \text{ or } 204 \text{ feet}$$

The table listed below gives the necessary course length to equal 1/128 of an acre for some of the more common spray-tip spacings or band widths. For other widths or spacings, the course length can be calculated using the example above.

Band Width or Nozzle Tip Spacing on Broadcast Boom	Course Length to Travel (Feet)
10	408
12	340
14	292
16	255
18	227
20	204
22	185
24	170
28	146
30	136
32	127
34	120
36	113
38	107
40	102

From the previous example, 204 feet was the calibration distance necessary for 20-inch nozzle spacing. To complete the calibration process, follow the following steps:

1. Measure off a course length of 204 feet in an area similar in surface conditions to that of the area to be sprayed.

2. Select the ground speed, gear and engine rpm speed that will permit safe and efficient operation of the sprayer.
3. After setting the spray system pressure to the desired pressure, bring the sprayer to operating speed before reaching the beginning of the 204-foot course. As the sprayer passes the start marker, start timing with a stop watch or a watch with a second hand. Continue timing until the same part of the sprayer reaches the end marker for the course.
4. Repeat this timing process in the opposite direction and average the two times.

Sample Times: Trip 1 = 23 seconds

Trip 2 = 21 seconds

Average = 22 seconds

5. Park the sprayer, and with the engine running at the same rpm speed and the same pressure setting, catch the water output from several nozzles on the boom for 22 seconds each. Measure the output in fluid ounces. The number of ounces caught from each nozzle represents the application rate in GPA.

Sample Volumes

Nozzle	Ounces	Application Rate (GPA)
1	32	32
2	31	31
3	32	32
4	33	33
5	32	32

[Home](#)

Copyright © 2002 Alabama Pecan Growers Associations. All rights reserved.
This page was designed for a screen resolution of 800 x 600.