

Calibrating Spray Equipment

Always read the entire pesticide label before use.

Select the proper equipment for the job to be done. This includes pump, hoses, pressure regulators, etc.

During calibration, only use water and a spray colorant. Do not use chemical during calibration. The colorant will aid in determining spray pattern size, coverage and pressure.

Calibrate properly and check calibration periodically.

Calibration of Backpack, Hand Can Sprays and Shower Head Type "Guns" (Broadcast Application). Flat fan nozzles and shower head guns are generally used in broad applications.

- A. Measure a 20' by 50' area or 1,000 sq. ft.
- B. Fill the sprayer with water and colorant to a known mark.
- C. Spray the 1,000 sq. ft. area. Keep walking speed and pressure constant. Use of the colorant will show light, heavy or skipped areas of application.
- D. Measure the amount of water required to refill the sprayer to the mark. This is the spray volume per 1,000 sq.ft.
- E. The amount of pesticide to be added to 1 gallon of water can be determined using the following formula:

$$\frac{\text{Label Rate in ounces/1,000 sq.ft.}}{\text{Spray Volume in gallons/1,000 sq.ft.}} = \text{number of ounces of pesticide to be added per gallon of water.}$$

Example 1:

The pesticide label rate is 1.2 ounces/1,000 sq.ft.
The spray volume is 0.5 gallons/1,000 sq. ft.

$$\frac{1.2}{0.5} = 2.4 \text{ ounces of pesticide per gallon of water.}$$

Example 2:

The pesticide label rate of 1.5 ounces/1,000 sq. ft.
The spray volume is 2 gallons/1,000 sq. ft.

$$\frac{1.5}{2} = .75 \text{ ounces of pesticide per gallon of water.}$$

Calibration of Backpack and Hand Can Sprayers (Spot Sprayers)

Hollow cone nozzles are generally used in spot spraying. Therefore, these nozzles are difficult to calibrate because the spray pattern is different than flat fan patterns. The dilution of pesticide in water is more important than the area covered in spot spraying.

- A. Fill the spray with water.
- B. Pressurize and spray water into a measured container for one minute. Keep pressure constant.
- C. Measure the amount of water dispensed.
- D. The mixing rate can now be determined.
 1. If the spray volume is 1 gallon per minute, use an mid to high range of the dosage recommended on the label per gallon of water.
 2. If the spray volume is less than 1 gallon per minute, use a low to mid range label dosage per gallon of water.
 3. If the spray volume is greater than 1 gallon per minute use the high range label dosage per gallon of water.
- E. Spray weeds just as you would in broadcast applications. Do not drench weeds.

Calibration of Boom Sprayers

- A. On level ground, fill the sprayer with water and spray colorant.
- B. Open and close the boom valve quickly.

C. Measure the width of the spray pattern.

D. Divide 4,000 by the width of the spray pattern. This number is the length of the 4,000 sq.ft. calibration area.

Example: If Boom spray width = 15 ft.; $4000/15 = 267$ ft

E. Mark the start and end of the calibration area.

F. Approach starting mark at a desired spraying speed. Open the boom valve at the start of the area and close it at the end. KEEP SPEED AND PRESSURE CONSTANT.

Observe spray pattern, check for plugged, turned or malfunctioning nozzles.

G. Return to level ground and measure the amount of water required to refill the sprayer.

H. Divide this quantity by 4 to determine spray volume per 1,000 sq. ft.

I. From the pesticide label and the following formula determine how many ounces of product should be added to the tank.

$$\frac{\text{Quantity of water sprayed}}{4} = \text{Spray volume/ 1,000 sq. ft.}$$

$$\frac{\text{Tank capacity}}{\text{Spray Volume}} \times 1,000 = \text{sq. ft. that will be treated per tankful.}$$

Assuming label rate is per 1,000 sq.ft.,

$$\frac{\text{sq.ft. that will be treated per tankful}}{1,000} \times \text{label rate} = \text{ounces of pesticide per tankful}$$

Example 1:

Tank capacity is 150 gallons; quantity of water sprayed over 4,000 sq. ft. is 18 gallons, label rate is 1.5 ounces/ 1,000 sq. ft.

$$\text{Spray volume: } \frac{18}{4} = 4.5 \text{ gallons/ 1,000 sq.ft.}$$

$$\text{Area 1 Tankful will treat: } \frac{150}{4.5} \times 1,000 = 33,000 \text{ sq. ft}$$

$$33 \times 1.5 = 49.5 \text{ ounces of pesticide per tankful.}$$

Example 2:

Tank capacity = 250 gallons

Quantity of water sprayed over 4,000 sq.ft. = 16 gallons

sq. ft. Label rate = 1.2 oz / 1,000 sq. ft.

$$\text{Spray volume: } \frac{16}{4} = 4 \text{ gallons / 1,000 sq. ft.}$$

$$\text{Area/Tankful will treat: } \frac{250}{4} = 62,500 \text{ sq. ft.}$$

$$62.5 \times 1.2 = 75 \text{ ounces of pesticide per tankful.}$$