

Orchard Sprayer Calibration

There are three numbers or parameters that need to be determined for a complete calibration **1. Travel Speed; 2. Output Rate; 3. Desired Volume.**

1. Measuring Travel Speed (miles per hour)

Drive tractor and sprayer into an orchard (in gear and at engine rpm used to spray) with the sprayer engaged (plain water spraying from the tank).

Using a length of 4 or 5 trees (total this distance for calculation), measure the time it takes to travel the full distance. Repeat three times, then average the times. Use results in the figure below to calculate miles per hour.

$$\text{Miles per hour} = \frac{\text{Distance traveled (feet)} \times 3600 \text{ seconds/hour}}{\text{Time to travel (seconds)} \times 5280 \text{ feet/mile}}$$

2. Measuring Output Rate (gallons per minute)

- Park sprayer on level ground; fill tank to overflow.
- Operate sprayer for 3 minutes at full operating speed.
- Refill the tank to overflow, measuring the amount of water used. Divide water used by 3 to calculate gallons per minute.

If you want to know the gallons per acre applied by your sprayer, you must know the **“gallons per minute”** and **“acres per minute.”**

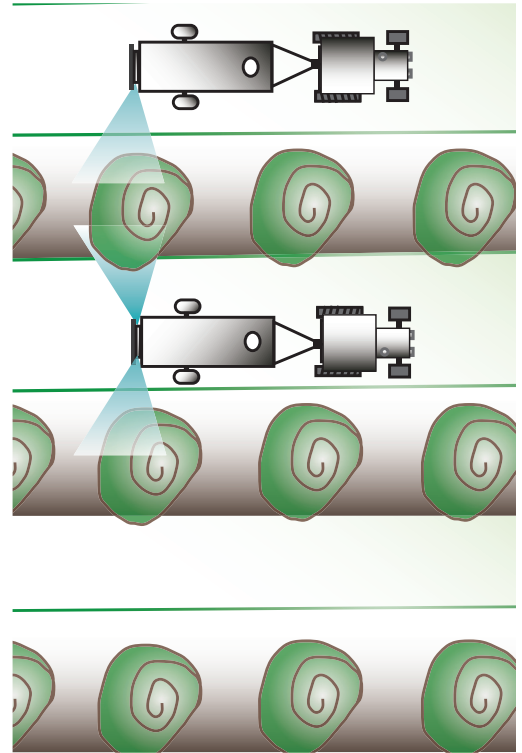
First measure the flow rate of the sprayer in gallons per minute (see **“Measuring Output Rate”**).

Use these numbers in the following calculation:

$$\text{Acres per minute} = \frac{\text{Row spacing (feet)} \times \text{travel speed (mph)} \times 5280 \text{ feet/mile}}{43,560 \text{ square feet/acre} \times 60 \text{ minutes/hour}}$$

3. Use the following calculation to determine desired volume (gallons per acre)

$$\text{Gallons per acre} = \frac{\text{Gallons per minute}}{\text{Acres per minute}}$$



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