

# Calibrating a boom sprayer

- **Test the nozzles.** Make sure all nozzles have the same output and have good spray patterns.
- **Determine the travel speed.** See the accompanying chart.
- **Determine the nozzle output.** Select the spray pressure at which the system will be operated (check herbicide label and nozzle recommendations for guidelines). Adjust to desired pressure while pump is operating at normal speed and water is actually flowing through the nozzle. Minimize off-target drift by operating at the lower end of a nozzle’s pressure range. Collect spray from nozzles (in ounces) at the pressure to be used for a time interval easily converted to one minute (e.g. 30 sec \* 2). The more nozzles you collect from, the more accurate the calibration. Calculate the average output from the nozzles sampled.

- **Example:** 16oz + 16.5oz + 17oz + 16oz + 16.5oz = 82oz  
 $82\text{oz} \div \text{by } 5 \text{ nozzles} = 16.4 \text{ oz in } 30 \text{ sec}$   
 $16.4 \text{ oz} / 30 \text{ secs} = 32.8 \text{ oz /minute}$

Convert to gallons per minute  
 $32.8\text{oz per minute} \div 128\text{oz per gallon} = 0.256 \text{ gallons per minute (GPM)}$

- **Measure nozzle spacing.** Measure the distance between two nozzles, center to center
  - **Example:** 20 inches
- **Calculate the delivery rate in gallons per acre (GPA).** Use the following formula by inserting travel speed in miles per hour, nozzle spacing in inches, and the average gallon per minute output of nozzle

$$\frac{(5940 * \text{nozzle output in GPM})}{(\text{mph} * \text{nozzle spacing in inches})} = \text{GPA}$$

EXAMPLE:

$$\frac{(5940 * 0.256 \text{ GPM})}{(4.5\text{mph} * 20'')} = 16.9 \text{ gallons per acre}$$

**How to determine speed in miles per hour if you do not have a ground speed indicator on your equipment.**

1. Set two markers in the field 200 feet apart.
2. Select gear and throttle setting on your vehicle.
3. Check time (in seconds) from running start to drive the 200 feet.

Time required to travel 200 feet at various speeds	
Time for 200 feet Seconds	Equivalent speed MPH
45	3
34	4
27	5
23	6
19	7