

Sprayer Calibration Nomograph

Dennis K. Kuhlman
Extension Agricultural Engineer
Pesticide Application

Accurate calibration is one of the best ways to ensure proper application of agricultural chemicals. The nomograph on the reverse side eliminates the calculations that are usually required to calibrate a sprayer.

You will need a quart jar, a funnel, a tape measure, a watch with a sweep second hand, a pencil and a straight edge. This procedure is not adapted to sprayers with ground driven, positive displacement pumps. The only other requirement is that the speed, nozzle spacing, and nozzle flow rate fall within the limits shown on the scales of the graph.

Procedure

1. Operate the sprayer standing still with plain water (or the usual carrier) in the tank. Use the normal engine speed and pressure settings. Use a funnel to catch the flow from one nozzle in a quart jar. Determine the length of time (in seconds) needed to fill the quart jar. Repeat this for all nozzles and average the results. Replace any nozzles that vary 20 percent or more from the average.

2. Measure a distance of 176 feet, and determine the length of time (again in seconds) needed to cover the 176-foot distance. This should be done with the

same gear and throttle setting that will be used for spraying. If possible, do this in the field that will be sprayed so that sinkage will be nearly constant.

3. Measure the swath width of each nozzle. For boom spraying where the total area is covered, this is the nozzle spacing in inches. For band spraying, this is the band width in inches.

4. Now, refer to the nomograph. Draw a straight line from the "seconds to travel 176 feet" to the "nozzle spacing in inches."

5. Locate the point where your first line crosses the pivot line. Draw second straight line from that point to the "seconds to fill quart jar."

6. Read "Gallons per Acre" from the appropriate scale.

Example (Shown in dashed lines)

A field crop sprayer is equipped with nozzles that fill a quart jar in **50** seconds at the usual spraying pressure. The sprayer covers a 176-foot distance in **24** seconds. Nozzle spacing is **20** inches. When operated under these conditions, the sprayer will deliver **17.8** gallons per acre.



Cooperative Extension Service, Kansas State University, Manhattan

MF-415

October 1988

Issued in furtherance of Cooperative Extension Work, acts of May 8 and June 30, 1914, as amended. Kansas State University, County Extension Councils, Extension Districts, and United States Department of Agriculture Cooperating, Richard D. Wootton, Associate Director. All educational programs and materials available without discrimination on the basis of race, color, national origin, sex, age, or disability.

File Code: Engineering 3

8-88—1M; 3-89—1.5M; 10-89—1.5M; 1-93—500; 2-94—1M; 10-95—2M

