Sprayer calibration

fact sheet

What is calibration?

The calibration of application equipment refers to output per unit area (e.g., l/ha or kg/ha). Output varies with:

- The speed of application
- The equipment (e.g., nozzle type and pressure)
- The width of application

(Photo courtesy IRRI)

How calibrate equipment?

Method 1 – Measure total output in a given area	Method 2 - Output per unit time combined with the time required to cover an area
1. Measure a given area (e.g., 500 sq m) 2. Measure the output from the application devise (e.g., sprayer or spreader) to cover the area 3. Calculate output per unit area *Example:* Test area = 200 sq m Output to cover area Start volume = 3.5 L End volume = 1.5 L Volume applied = 3.5 L - 1.5 L = 2 L Calibration = output per unit area = 2 L/200 sq m*10,000 sq m/ha = 100 L/ha	1. Measure operating speed (e.g., walking time with backpack to cover 100 m) 2. Measure the output from the sprayer or spreader in a given time (e.g., 1 minute) 3. Measure the width of application 4. Calculate output per unit area *Example:* Sprayer output = 2 L/min Speed = 120 s/100 m = 1.2 s/m Width of application = 4 m Calibration $= \frac{\text{Sprayer output} \times \text{time to cover a selected distance}}{\text{area covered in given time}}$ = 2 L/min*120s/(100*4 sq m)* 1min/60s * 10,000 sq m/ha = 100 L/ha

Note: Measure the speed of walking or driving (motorized units) under field application conditions. Speed on a flat hard surface will likely be quicker than the speed of moving through a field.

Products often require application in a certain volume per ha of carrier (e.g., water). Always read and follow the manufacturer's recommendations.

How much product do I need per tank load?

Product per tank = Target product application rate per ha * sprayer volume/target field application volume

Example:
If Target product application rate = 2 L/ha
Sprayer tank volume = 10 L
Target field application volume = 120 L/ha
Product per tank = 2 L/ha x 10 L/tank/120 L/ha ≈ 0.17 L/tank

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