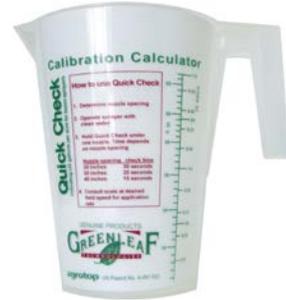


Instructions for Use of Quick Check Calibration Calculator

The Greenleaf Technologies' Quick Check Calibration Calculator allows fast and accurate calibration and testing of agricultural sprayers.

The Calibration Calculator is marked with a series of scales which enables a sprayer operator to calibrate or establish the following parameters of sprayer operation:

1. Volume applied per acre for a variety of ground speeds.
2. Control of nozzle flow rates.
3. Volume of liquid passing through standard nozzle types at given spraying pressures.
4. Evaluation of sprayline pressure losses and/or pressure gauge
5. Simple volume measurement.



To use the Calibration Calculator properly the operator must have an accurate stopwatch at hand and a level surface on which he can stand the Calibration Calculator.

Operators must observe normal safety procedures while calibrating or setting the sprayer. All calibration work should be carried out using clean water in the sprayer.

To perform standard sprayer calibration on sprayers with nozzle spacing at 20 inches:

Fill sprayer tank with water and switch pump on. Sprayer RPM should be set at normal operating speed. Switch nozzles/boom sections on.

Hold Calibration Calculator under nozzle for 30 seconds. Remove from water flow and place the Calibration Calculator on an even base. The level of liquid can be read across the scale and indicates GPA applied at different ground speeds by reading off against the vertical columns.

Example: Water level indicates that 20 GPA would be applied at 6 mph, 15 GPA at 8 mph, 12 GPA @ 10 mph, 10 GPA @ 12 mph, etc.

If the measured volume is higher than desired for the chosen speed, reduce the spraying pressure. If the measured volume is too low for the chosen speed, increase the spraying pressure.

(Check with manufacturer's recommendations for suitability of tips at different spraying pressures.)

To perform sprayer calibration on sprayers with nozzle spacing different from 20 inches:

With sprayer switched off, measure distance between all spray nozzles along boom. If distances differ from 20", use table below to establish time required to conduct calibration test.

Nozzle Spacing	Inches	40	30	25	20	19	18	15	10
Test Time	Seconds	15	20	24	30	31	33	40	60

The variation between individual nozzle output should not exceed $\pm 5\%$ of the average. Where higher differences appear, the following are the most likely causes:

1. The nozzle strainers are clogged.
2. A supply line is broken or clogged.
3. Worn out nozzles have been mixed with new nozzles across the boom.
4. Nozzles of different types have been installed.

To check volume of liquid passing through standard nozzle types at given spraying pressures:

If a nozzle of known size is installed, the Calibration Calculator will enable the operator to check the volume of water that should pass through the nozzle for a given pressure.

Divide nozzle size by two. (For example: If 03 nozzle is installed, divide .03 by 2, to get .015)

Set sprayer pressure at 40 psi. Open boom sections and adjust pressure, if required, to chosen pressure. Hold Calibration Calculator under nozzle for 30 seconds. Remove and place on flat surface. Volume delivered should reach selected volume mark on gallon scale.

If this value differs greater than $\pm 5\%$ of manufacturers specifications, see above for possible causes.

Note: If spring-loaded ball type check valves or check valve strainers are being used, spray pressure must be increased to compensate for the pressure drop through the check valve (usually 5 or 10 psi, depending on the spring rating).

To determine system pressure loss/faulty pressure gauge:

Using *new* nozzles for the above test will also allow operator to establish pressure losses within spray lines and or pressure gauge error. For the actual measured volume on a new nozzle there will be a fixed pressure value (For example an 03 nozzle at 40 psi should provide 0.3 gpm). If the equivalent volume through a new nozzle is collected in 30 seconds at a pressure other than 40 psi, an error exists with the pressure gauge, or pressure losses are occurring in the spray line.

Simple Volume Measurement

Next to the Operating Instructions on the Calibration Calculator is a straight forward volume scale in both ounces and gallons.

