Sprayer Calibration Log

How-to guide: what the workbook does, how to use it and what every number means. mfgcalcs.com

Sprayer Calibration Log

Log every boom sprayer calibration: applied gallons per acre against the target, the speed that hits it, and tip wear against the tips' rated output.

For: Farm managers, spray operators, agronomists and contract sprayers calibrating boom sprayers.

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Quick start

1. On Setup, set your rate tolerance and tip wear limit, and list your sprayers with their nozzle spacing, nozzles and tank, and your tips with their rated output and pressure.
2. On Checks, give each calibration a row: date, sprayer, tip, pressure, ground speed, the average and highest nozzle output from the catch test, and the target rate.
3. Fix anything the Check column names.
4. Open the Dashboard: pick a sprayer for its season trend, and see every sprayer's rate against target at its latest check.

What is in the workbook

Start Here	Read this first: what the workbook does and how to use it.
Setup	Operation, the rate tolerance and tip wear limit, the sprayers, and the tips with their rated output.
Checks	One row per calibration check: catch test, speed and target in; applied rate, error, speed for target and tip wear out.
Dashboard	Applied rate against target and tip wear for every sprayer, and the season trend of the sprayer you pick.
Method	How every number is calculated, with assumptions, limits and sources.
Verify	Self-check: the workbook's formulas recomputed on fixed inputs against an independent reference.

What each number means

Quantity	How it is calculated	Units
Applied rate	Average nozzle output x 5940 / (ground speed x nozzle spacing).	gal/acre
Rate error	Applied rate / target rate - 1.	%
Status	Within limits when the rate error is within the tolerance either way; otherwise Out of limits.	-
Speed for target	Average output x 5940 / (target rate x nozzle spacing).	mph

Quantity	How it is calculated	Units
Rated at pressure	Rated output x square root of (pressure / rated pressure).	gal/min
Tip wear and replace tips	Highest output / rated at pressure - 1; Yes when above the wear limit.	%, -
Boom output and acres per tank	Average output x nozzles; tank / applied rate.	gal/min, acre

Assumptions, limitations, sources and the self-check (the Verify sheet, which recomputes the workbook's formulas on fixed test inputs) are in the workbook. The last page shows the Dashboard with the example data for Westbrook Farms, a fictional business.

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Engineering estimates for planning and improvement work. Verify the results against your own process, data and standards before you rely on them.

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Applied rate against target and tip wear for every sprayer, and the season trend of the sprayer you pick.

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Sprayer shown in the trend: Boom 60

Westbrook Farms (example): 5 sprayers, 16 checks. Tolerance +/-5%, tip wear limit 10%.

CHECKS	OUT OF TOLERANCE	TIPS TO REPLACE	LARGEST RATE ERROR
16	3	2	19.6%
Rows with an applied rate	Rate error outside the tolerance	Checks with wear over the limit	Either way, over every check

Rate error and tip wear, sprayer shown



Applied rate against target, latest check (gal/acre)

