Quick Check for Calibration

Easy method to keep your Sprayer Accurate:

Most everyone starts the season out by repairing and calibrating their spray equipment. How many recalibrate on a regular basis? In an old survey from Iowa State University, it was reported that only about 40% of those surveyed admitted to checking to see if their equipment was still applying the right amount of liquid sometime later into the growing season. This probably has not changed much over the years; however, with computer equipment now used in herbicide applicators, it is easier to catch calibration errors. Still, this is a quick and easy process that takes only a few minutes of time, a catch bucket that measures ounces, and a stick to scratch out a few numbers in the dirt (pencil and paper works also). There are several ways to initially calibrate spray equipment, but below is a quick way to check that it is still correct after the equipment has been used.

Once the sprayer has been partially filled with water and before the herbicide is added, run the equipment in a neutral gear at the RPM’s you would spray at and catch the output from each nozzle using the simple formula:

\[
\frac{89,100}{(W) \times (GPA) \times (MPH)}
\]

\[W = \text{width between nozzles in inches}\]
\[\text{GPA} = \text{gallons per acre you want to apply}\]
\[\text{MPH} = \text{miles per hour you are driving}\]
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The number 89,100 is a constant that takes into account everything that you need to calibrate in gallons per acre. This formula can be simplified if you round off the 89,100 to 90,000. By changing it to 90,000 you change the constant by only 1%, which is probably the most accurate thing you are going to do in the whole calibration process. The 1% is only for that part of the formula, which means that for the whole process you are changing the results by some few tenths of a percent.

\[ \text{Sec/qt} = \frac{90,000}{(W) \times (GPA) \times (MPH)} \]

Say you want to spray 20 GPA from a sprayer with 20 inch spacing between nozzles. Your ground speed is 6 MPH.

\[ \text{Sec/qt} = \frac{90,000}{(20) \times (20) \times (6)} \]

\[ \text{Sec/qt} = \frac{90,000}{2,400} \]

\[ \text{Sec/qt} = \frac{900}{24} \]

\[ \text{Answer} \quad \text{Sec/qt} = 37.5 \]

You need to catch 1 qt in 37.5 (37 or 38) seconds and you will be calibrated at 20 GPA. One quart equals 32 oz. If you divide the time (37.5 sec.) by 2 then you can catch 1pt (16oz) in 19 seconds and you will still be calibrated at 20 GPA. Check each nozzle for this output and you are calibrated. Try this simple process with your own numbers.