Innovation through formulation

Steps to calibrate your herbicide sprayer

Calibrating your sprayer is very simple and takes only a few minutes. To get started, grab a bucket, measuring cup, timer, measuring tape and a helper, then follow these steps.

To determine how many gallons per acre (GPA) the sprayer is putting out – you will need to get the required numbers from the below 3 steps.

Step 1: Begin by capturing miles per hour (MPH).

If your tractor has a speedometer, this step is easy. Determine how fast you can go over your entire field. Constant speed is critical; don't go any faster than you can go over the worst part of your field. Note the speed as well as the revolutions per minute (RPM) at that speed. You'll need to know the RPM in order to get accurate gallons per minute in the next step.

If your tractor does not have an accurate speedometer, this requires an additional step. Measure out 88 feet and put up flags at the beginning and end of the 88 feet. Drive the tractor at a speed you can spray your entire field and time yourself as you travel 88 feet. Start driving the tractor before you pass the starting point so that you are going at spraying speed when you pass the first flag. Record how long it takes you to go 88 feet. Remember to record your RPM as well. Complete this step three times and note your average time.

Then, take your average time to go 88 feet and multiply it by 60 (because 88 feet is 1/60 of a mile). For example, if it took you 3.8 seconds to go 88 feet, multiply 3.8 x 60; it would take you 228 seconds to go a mile. Since there are 3600 seconds in an hour, divide 3600/228 = 15.9 MPH.

Step 2: Determine how many gallons per minute (GPM) the sprayer is putting out.

Before you begin, make sure you only have water in the tank—no pesticides. Also be sure the tractor is at the RPM you will be spraying at. If it is only idling, you won't get the proper pressure on the sprayer and you will not get the correct gallons per minute.

Hold a bucket under the nozzle and capture all the water that comes out in 30 seconds. Measure the water you caught in the bucket and multiply it times 2. This is how many gallons per minute the nozzle is spraying. If you have more than one nozzle, do this for each one.

Red River Specialties
1324 N Hearne Ave, Ste 120
Shreveport, LA 71107

T 800 256 3344

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It's a good idea to repeat this step a few times on each nozzle and take the averages. For instance, if you get 57 oz. in 30 seconds, multiply it by 2 to get 114 oz. Now divide 114/128 (ounces in a gallon) = .89. Your spray nozzle is putting out .89 GPM.

Step 3: Capture the swath width in inches.

It's important to capture measurements in inches to get the correct GPA. Put the nozzle over cement or a sandy spot—anywhere you can easily see the spray pattern on the ground will work. Crank the tractor up to the RPM target and turn on the sprayer for a few seconds.

Look at the pattern and measure out the effective spray width. If you see a few drops on the outer edges, do not include in your measurement as those spots aren't effective.

Now to get the GPA – Do the math.

Plug the variables you captured into the below formula. Note that 5940 is a constant that you will always use in this formula.

$$GPA = \frac{5940 \times GPM}{MPH \times Swath\ Width}$$

You're now well prepared to ensure you are putting out the recommended product rates to achieve the best control possible!

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